

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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to continue rising in value. They may all be daily secured at the lowest
special attention is directed to North Laxey, East Van, Plymlimon,
Great Laxey, and West Tankerville, which can be dealt in very advan-

tageous. Eberhardt, Frontline, Don Pedro, San Pedro, St. John del
Copper, Fortuna, New Quebrada, Richmond, and Blue Tent will be
rely attention.
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H. 15 Gunnislake, 23 lls. 3d.
I. 50 Last Chance, 16s.
J. 30 San Pedro, £4 1/2%.
K. 50 Santa Barbara, 19s.
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M. 25 Mark Valley, £3 1/2%.
N. 30 North Laxey, 35s. 6d.
O. 40 New Consols, £1 1/2%.
P. 60 Old Treburgett, 11s. 3d.
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R. 40 Pennerley, 25s.
S. 20 Pateley Bridge, £0 1/2%.
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West Van, 60 Frontino and Bolivia, 100 Parys Mountain, 50 Pen-
Cathmore Colliery, 15 Glyn, 30 Rookhope Valley, 20 South Llanarmon Colliery, 25
SPECIAL BUSINESS in North Cornwall Lead Mining Company as a burver and
seller at close prices.

INVESTMENTS IN BRITISH LEAD MINES.—

VAN LEAD MINE, EAST VAN, GREAT LAXEY, NORTH
LAXEY, WEST CHIVERTON, TANKERVILLE, ROMAN GRAVELS,
PENNERLEY, MINERA, WEST TANKERVILLE,
PARYS MOUNTAIN, LADYWELL, and several other DIVIDEND
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BRITISH AND FOREIGN MINING NEWS,
STOCK AND SHARE INVESTMENT NOTES—
MINES, MINERALS, AND METAL MARKETS—SHARE LIST,
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Central Van. Roman Gravels.
Chapemore Colliery. St. Patrick.
Chapel House. Llanrwst.
East Caradon. Monydd Gorddu.
East Van. North Laxey.
Flagstaff. Pateley Bridge.
Pennybridge & Lead.

Mr. COOKE issues daily price lists both of Stock Exchange and Mining Shares, which will be forwarded on application.

STOCK EXCHANGE SPECULATION OR INVESTMENT.—Best information given, and Fortnightly accounts opened. Terms on application.

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The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

	Buyers.	Sellers.	Buyers.	Sellers.
Argentine Gold (prem.) £ 1 1/2... £ 2	Pannierley	£ 1 ... £ 1 1/2	Glyn	£2 1/2%
Birdseye Creek	Penstruthal	8s. ... 10s.	Pennerley	£1 1/2...
Bog	Princes of Wales	4s. ... 6s.	Princes of Wales	4s. ... 6s.
Chapel House	Plymlimon	10s. ... 18s.	Plymlimon	10s. ... 18s.
Devon Great Consols	Richmond	6 ... 6 1/2	Richmond	6 ... 6 1/2
Eberhardt	Roman Gravels	14 1/2 ... 14 1/2	Roman Gravels	14 1/2 ... 14 1/2
East Caradon	Rookhope Valley (new)	1 1/2 ... 1 1/2	Rookhope Valley (new)	1 1/2 ... 1 1/2
East Van	Santa Barbara	1 1/2 ... 1 1/2	Santa Barbara	1 1/2 ... 1 1/2
Emma	San Pedro	4 1/2 ... 5	San Pedro	4 1/2 ... 5
Exchequer Gold	South Conduffor	2 1/2 ... 2 1/2	South Conduffor	2 1/2 ... 2 1/2
Flagstaff	Sweetland Creek	12 ... 12 1/2	Sweetland Creek	12 ... 12 1/2
Glyn	Tinwald	18 ... 20	Tinwald	18 ... 20
Great Laxey	Unity Wood	1 1/2 ... 1 1/2	Unity Wood	1 1/2 ... 1 1/2
Great West Van	Van	30 ... 41	Van	30 ... 41
Hington Down	Van Consols	2 1/2 ... 2 1/2	Van Consols	2 1/2 ... 2 1/2
Javali	West Craven Moor (x.d.)	17 ... 18	West Craven Moor (x.d.)	17 ... 18
North Laxey	West Tankerville	2 ... 2	West Tankerville	2 ... 2
New Quebrada	Wheat Agar	2 1/2 ... 2 1/2	Wheat Agar	2 1/2 ... 2 1/2
New Rosario	Wheat Crebion	2 ... 2	Wheat Crebion	2 ... 2
Old Treburgett	Wh. Kitty (St. Agnes)	2 ... 2	Wh. Kitty (St. Agnes)	2 ... 2
Parys Mountain	West Godolphin	1 1/2 ... 1 1/2	West Godolphin	1 1/2 ... 1 1/2
Pateley Bridge	Wheal Crebion	6 ... 6 1/2	Wheal Crebion	6 ... 6 1/2

The names of half-a-dozen mines selected for investment forwarded on application.

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Capitalists who seek Safe and Profitable Investments should act only upon the soundest information. The market prices for the day are, for the most part, governed by the immediate supply and demand, and not always by the bona fide merits of the properties.

Mr. E. J. BARTLETT devotes special attention to every class of securities.

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Messrs. H. and Co. have Special Business in Chapel House and Altami Collieries, also in the shares of the Oregon Gold, and the Patent Ligno Mineral Paving Companies, and will be happy to give full particulars of the above desirable Investments on application.

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West Consols. Plymlimon.
West Tankerville. East Lovell.
Grogwinion. Rookhope Val.
Pennerley. Richmond.
Parys Mountain. Chapel House Colliery.

Eberhardt. Sweetland Creek.
Flagstaff. Emma.
Javali. Chontales.
Cedar Creek. Tecomia.
Gold Run. Almada.

Public attention is evidently turned to good Mining Enterprises, which afford great profits with small outlay. A large business is being transacted in the following, J. S. having Special Business:—

East Van, Roman Gravels, Tankerville, Pateley Bridge, Great Laxey, Rookhope,

North Laxey, Ladywell, Ashton, Penstruthal, Great West Van, Pennerley, Old Treburgett, Wheal Grenville, Parys Mountain, Argentine Gold, Exchequer, &c.

FOR SALE, at annexed prices:—

20 Pennerley, 23s. 3d. 20 East Van, £22. 200 Gold Run, 17s. 6d.

20 Grogwinion, £5 1/2. 70 Santa Barbara, 28s. 50 Gt. West Van, 16s.

50 Chapel House, £3 1/2. 80 Parys Mountain, 21s. 60 Ashton, 37s. 6d.

30 Richmond, £6 6s. 6d. 60 Rookhope, 28s. 90 Nth. Laxey, 35s. 6d.

JAMES STOCKER, SWORN BROKER.

Consols, Foreign Bonds, Railways, Bank, Telegraph, Gas, and all miscellaneous Shares bought and sold, and fortnightly accounts opened for same. Shares sold for forward delivery on receipt of cover. List of prices and every information for war application.

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INVESTMENTS AND SPECULATIONS FOR 1876.—CHARLES THOMAS, 3, GREAT ST. HELEN'S, LONDON.

TEMPLE LEAD MINING COMPANY (LIMITED).
This company is formed to work a VALUABLE LEAD MINE on the celebrated Van lode.

Full particulars may be obtained on application to CHARLES THOMAS, 3, Great St. Helen's, London, E.C.

MESSRS. A. W. THOMAS AND CO. 10, COLEMAN STREET, E.C., MINING AGENTS, AND STOCK AND SHARE DEALERS.

Our annual pamphlet, entitled "Investments and Speculations for 1876," is now out of the printer's hands. Copies may be obtained upon application to us.

MESSRS. T. VOSPER AND CO. 48, FINSBURY CIRCUS, LONDON. MINERAL AND GENERAL ESTATE AGENTS.

broken away and carried down into the gorges of Big Cottonwood. Its ores are of a higher grade than those of the Davenport or Emma Mines. The question of the permanency of these mines has been a nightmare in the minds of owners on Emma Hill for many years; but a late discovery has, to a great extent, dispelled any doubts on this score. It is reported on good authority that the Bay City tunnel, which is now in between 1200 and 1300 ft., has at last struck a fine body of ore, and there can be no doubt that the deposit struck is a continuation in depth of the Emma belt of mines. The face of the tunnel is considerably over 1000 ft. deep, and, measuring on the pitch of this ore stratum, fully 1500 ft. below the Emma or Bruno shafts.—*Mining Review* (Colorado), Jan. 10.

Royal School of Mines.

PROF. SMYTH'S LECTURES ON MINING—No. XV.

[BY OUR SPECIAL REPORTER.]

In the last lecture we examined some of the contrivances used in boring apparatus, which had been devised to meet certain difficulties. The discovery of the oil wells in the United States gave a wonderful impetus to the operations of boring in that country. The iron workers and machine makers showed great activity in preparing suitable apparatus for the work, and these plates of engravings of the pieces of apparatus made by Morris, Tasker, and Co., of the Pascal Ironworks, will show how complete and varied that apparatus is, and how, on the whole, it is simpler than that used in Europe. The rods are sometimes of iron, sometimes of wood tipped with iron, and there are various arrangements to facilitate the fall of the tool, and a portion of the rods independently of the rest. In some cases the upper rods are attached to a piece which slides down a short distance over the tool when that is giving its stroke, so that the upper rods are but little affected by concussion.

The suggestion has been made, and with good reason too, that if a jet of water were kept playing to the bottom of the bore-hole it would facilitate the operation, by constantly washing away sand, gravel, &c., formed by the cutting tool. Some years ago a patent was taken out by a Frenchman for this process, but it appears that a patent was taken out long since by an Englishman of the name of Beart for a similar method. In many of the deeper bore-holes water is present, and when in sufficient quantities to overflow it will carry off much of this matter: if the water is not already present a stream of water is injected down on the inner side of the annular boring tool. When you come to very deep bore-holes this plan is met with many difficulties. A very ingenious method of cutting these holes is the adaptation of one invented by Leschot, for the purpose of boring the holes for the shots of gunpowder in mines. It consists of an annular tube, originally of soft iron, now usually of steel, in the lower edge of which is placed a series of small diamonds—of course, diamonds not suitable for gems, black diamonds, &c. A rapid rotatory motion is given to the instrument, and it cuts its way down around a central core, which is withdrawn from time to time in lengths of from 6 to 18 inches. The powder formed by the action of the borer is continuously washed out by a stream of water forced down the hole by a small injection pump. For boring holes of moderate depth, where it is necessary to examine the cores from time to time, this apparatus will be found very satisfactory. This method was taken up in England by a company of which Major Beaumont is the leading manager, and has been employed in sinking the scientific bore-hole at Battle. The most remarkable bore-hole put down by this method was one in Bohemia, which reached a depth of over 2000 feet.

We come next to a modification in the manner of suspending the boring tool, which was introduced into Europe comparative recently, but which appears to have been practised in China from a very early period. When it was stated, some years ago, before the French Institute by some missionaries from China that those people had carried down bore-holes to a depth of 3000 feet, at a time when the French were priding themselves in being the first to have attained a depth of 1800 feet, you may conceive the incredulity with which the statement was received. But the missionaries were able to verify their statements, and the fact is quite true. The tool is suspended by a rope (made in China of the bark of the bamboo), and thus the excessive and increasing weight of the rods is avoided. The method of working very commonly applied is that of a spring pole, which in some cases, according to the quaint ways of the Chinese, is provided at its free end with a platform and a seat above for the men while they work the pole with their feet. Some of the French engineers turned their attention to this plan, and employed it in several instances, mainly for the purpose of sinking to the water-bearing beds below the chalk. The work can be carried on with comparative rapidity; in good solid chalk upwards of 30 feet a-day can be penetrated. In these instruments the tool has to be of considerable length, in order to secure as far as possible verticality of direction. Some varieties of tools have been devised which shall not only cut the rock but also bring away the material with it. For example, in one case the top of the tool is something like a conical box, into which the broken material is washed by the action of a jet of water passing down the interior of the cylindrical tool and up the outer side through channelled spaces. Wire-ropes have been employed in some instances, but the general material is hempen rope: whatever material be employed, it should be something on the strength of which we can rely. In spite of all precautions, however, breakage will sometimes occur, and then a great deal of time may have to be spent in extracting the broken rope and tool; in some cases it cannot be done at all, and the only thing is to chop it to pieces, or to abandon the hole. (In the sinking of the Kentish Town bore-hole, where rods and not ropes were used, one of their greatest feats was the removal of a broken tool when near the bottom. It was chipped to pieces, and as much as possible was removed, then the remaining pieces were gathered together into a small heap in the centre of the hole by a piece of apparatus like fingers. Then an annular cutter was used to cut round the central piece, and, lastly, this core was removed with the pieces of the broken tool lying on its upper surface.) One of the greatest works of this rope method in Europe was the sinking of the well at the Military School, Paris, to a depth of 1000 feet: the person at the head of the management asserted that even at this great depth the tool could be controlled and regulated easily by the hand above.

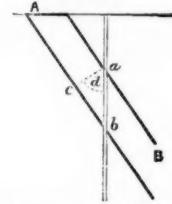
The next system of cutting to be mentioned is that patented by Messrs. Mather and Platt: a paper on the subject was read by them before the Society of Arts some years ago. Their apparatus differs from those already described in two main points, first in the way of working the machine at the surface, and secondly in the character of the tool below. A flat hempen or wire rope is employed to suspend the tool, and this passes over a pulley above the hole, and on to a drum, being clamped at an intermediate point during the working. A small cylinder and vertical piston were placed so that when the steam was admitted below the piston, the piston-rod might raise the pulley with which it was connected, and with it the tool, which was allowed to fall by the descent of the piston. Means were provided for regulating the length of the stroke, and the bore-hole might be worked up to as much as 12 or 14 inches diameter. The tool is a great, long, and heavily weighted iron rod, lengthened in order to keep the hole as near the vertical as possible. Inasmuch as you cannot have with a flat rope the torsion necessary to revolve the tool, an ingenious means was adopted for accomplishing this. The rope was attached below to an iron bow, which was again connected with a moveable collar, the two ends of which were cut into somewhat inclined teeth. This collar could move up and down through a space of a couple of inches or so, and locked at each end of its movement with a corresponding set of teeth on the bar of the tool. These two sets, however, were so placed that one was half a tooth in advance of the other, and it will be seen that the effect of the alternate locking of the collar with one and the other of these sets will be to cause the tool to rotate through half a tooth each time. This apparatus is found to work admirably and satisfactorily, but the question of expense is still under discussion. The most remarkable performance of the machine hitherto has been the boring at Middlesborough for water, some 11 years ago. A very interesting point about this boring was that at 1100 ft. they struck in rock salt, and magnificent cores of that substance were brought up; the boring was carried to 1300 feet, and there being no object in carrying it further it was stopped.

Very frequently in putting down bore-holes you cannot get a hole

to stand for more than a few yards without portions of the walls beginning to fall in, on account of the incoherent nature of the materials composing them, as sand, pebbles, &c. It is necessary to prevent this, for such matters might fall on the boring tool and jam it up. A great addition to the expense is thus necessary at an early period in the undertaking, in order to provide linings for the bore-hole. It is generally considered by engineers that wood would be the most suitable material for this purpose, but for the fact that so large a bulk of it is necessary as to reduce the bore-hole almost to nothing. The materials generally used are cast and wrought iron, copper, bronze, and zinc, according to the character of the water in the hole, and the corrosive effect it might have on any of these substances. Pipes of wrought-iron are generally favoured, and where that is corroded bronze, or zinc-iron, is used: zinc has been employed with advantage in Belgium in contact with sulphurous waters. The first pipe is put into the ground and pressed down by weights, a second is placed on the end of the first, and the two are connected firmly by a collar and rivets, and the pressure is continued, and so on. In some recent cases screw joints have been used, but they are more expensive. The friction increases with the length of the pipes already down, till at length it is not possible to force them down further; then suitable tools must be employed to enlarge the bore-hole below the tube; or a second smaller set must be put down, telescope fashion, inside the first. For the same reason a third set, still smaller, may be necessary, and it will be conceivable how rapidly the expenses will increase by this doubling and trebling of the lining in the upper parts. If an accident happen to these pipes by their striking against a hard rock, then the serious task of withdrawing the whole may have to be undertaken; and various instruments have been devised for the purpose. (The lecturer then described some of these instruments, examples of which, along with various kinds of boring apparatus, lay on the lecture table.) The finest tube of this kind ever constructed, the lecturer supposed, was that of the La Chapelle bore-hole, near Paris, the second set of which was 5 ft. 3 in. diameter, with a total thickness of 2 centimetres (about 4-5ths of an inch).

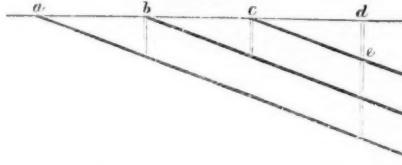
With regard to the arrangement and distribution of the bore-holes for the purpose of testing the ground several points have to be noted. It is very important to recollect that the result of a boring may give us a very false idea, unless we are in a condition to rectify it by knowing something of the geology of the district. The putting down of a single bore-hole gives us but little information, by multiplying our borings we may hope to get a fair average of the district. Gross mistakes are sometimes made concerning the thickness of a bed which has been penetrated by neglecting to allow for the dip of the beds. Thus in Fig. 18 the distance, *a b*, traversed by

Fig. 18.



the bore is not the thickness of the bed, *A B*, but if we draw *a c* perpendicular to the plane of the bed *a c* will be its thickness. And knowing the angle, *d*—viz., the dip of the bed, *A B*, and the length, *a b*—simple geometrical construction, or trigonometrical formula, will give us the value of *a c*. In a district where the beds dip pretty uniformly in one direction—as in the Durham coal field, for example—it would be a great mistake to put down one deep bore-hole where the same amount of information could be obtained from two or three smaller ones, inasmuch as the expense of boring increases rapidly with depth. Thus in Fig. 19 instead of proving the

Fig. 19.



three beds of coal, *a b c*, and the measures between, by means of the single deep bore at *d*, it would be much better to acquire the same information by sinking the three shallow pits, *b c d* (as far as *e*), each proving the ground from the surface down to the seam at which the preceding one left off. In certain districts there are persons undertake boring as their trade, and have a certain tariff of prices, which, however, the lecturer felt bound to say was somewhat deceptive, because as soon as any little difficulty occurred, or any rock slightly harder than the rest appeared, they required extra payment for it. They are very soon daunted by a slightly harder rock, and are apt to look on whin (and he had had half-a-dozen different things pointed out to him as whin), limestone, and all other hard materials as exceptional. The tariff he found in use at Newcastle some few years ago was 7s. 6d. per fathom for the first 5 fathoms, 15s. for the second 5 fathoms, and so on increasing 7s. 6d. for each 5 fathoms. The Diamond Boring Company vary their arrangements a great deal, but in some cases their tariff has been for the first 100 ft. 8s. per foot, 16s. for the second 100 ft., and so on. It will be seen that this will bring you up to a very high figure when you get down to great depths, hence one advantage of several small bore-holes instead of a single deep one. Mr. Kind some years ago undertook to put down in any country of Europe bore-holes of a diameter of 12 in. at what would appear to be a very moderate rate—80 frs. a metre down to 150 metres, 150 frs. a metre from 150 to 400 metres, 200 frs. from 400 to 500 metres. The rope boring in France has been carried out at very moderate rates, the apparatus being so much less expensive than in any other methods. In the hands of inexperienced persons the above prices would be greatly exceeded; to mention one case merely of a bore-hole in the great oolite, not many miles from London, put down at public expense, when they left off at 600 ft. the price had reached 12*l*. per foot. The great bore-hole at Spenerberg, near Berlin, cost 58,118 thalers, the thaler being equal to 3*s*.

NORTH STAFFORDSHIRE MINING INSTITUTE.

At the monthly meeting of members, held at Stoke-on-Trent, on Monday, under the presidency of Mr. C. J. HOMER, an able paper was read by Mr. J. ASHWORTH, of Burslem, in which he treated of the applicability of gunpowder and other explosives to mining. Mr. Ashworth gave the history of gunpowder; and, after giving a description of the different methods of making it in ancient and modern times, he said,—By varying the proportional quantities of the ingredients, carbonic acid and carbonic oxide gases, both mixed, are produced on an explosion, as shown by theoretical calculations and actual experiments, in addition to nitrogen gas and sulphur of potassium, which are always produced. When powder is fired charcoal decomposes saltpetre, and, consumption being accelerated by sulphur, which, besides causing the explosion to take place at a lower temperature than it otherwise would do, heats the generated gases, and assists in the decomposition of the saltpetre by combining with the potassium, and releasing the whole of the oxygen. Having obtained the best proportions of the ingredients of powder, the density and size of grain require attention. By increasing the density the relative quantity of gas is augmented, but its inflammability is diminished. We, therefore, have to vary the density and size of grains to suit our requirements. Quarter-inch cubes made of the density of common powder and of a larger percentage of saltpetre than is required theoretically to produce carbonic acid gas on explosion will enable us to get coal in better proportion to slack, and with less risk to the safety of the mine, than any mining powder

now in use. The extra quantity of oxygen obtained from these proportions would combine with the carbon of the cartridge paper and the coal dust left from the drilling of the hole, and would render the formation of carbonic acid gas more certain. For ironstone mining, tunnelling, and metal work a stronger explosive is required. To meet this want nitro-cotton and nitro-glycerine compounds have been introduced, but with only partial success—1, because of their increased cost per lb.; 2, their noxious fumes; and, 3 (as regards ironstone mines), the force is so rapidly developed, and so local in its effects that it breaks the stone into too small pieces, thus causing waste in the mine and a lower percentage of puddle mine when calcined. Gunpowder of the strength and quality of Curtis and Harvey's E.S.M. (which is believed to be the strongest powder it is possible to manufacture) will be found to be a cheaper and more effective substitute for ordinary blasting-powder in working ironstone measures than nitro-cotton and nitro-glycerine compounds. The strength of gunpowder is greatly increased by detonation; that is, the simultaneous conversion of the grains of powder into gas. Difficulties previously unsurmounted by French savants have only recently been overcome by Mr. André, in the detonator which bears his name. E.S.M. powder detonated is quadruple the strength of ordinary blasting-powder, and in many respects fully equal to No. 1 dynamite detonated. It is impracticable to do without some blasting compound to enable us to work our mines profitably. Blasting cannot be entirely abandoned either in steep coal mines or in ironstone mines, whether they give out explosive gas or not, without an increased risk to men's lives in the first instance, and such a largely increased cost in the second instance, as to render their working so unremunerative that their abandonment would be a necessary consequence. The question thus arises—What blasting agent shall we use? If we use a nitro-glycerine compound we lessen our risk from fire, but we increase it by the concussion of the air stirring up the fine coal dust and forcing the flame of a safety-lamp through the gauze. On the other hand, if we use the much-abused gunpowder prepared with care, composed of the proportions of ingredients which on ignition produce carbonic acid gas, and of such density and size of grain as will cause the least possible concussion of the air, we have, after all, the surest, safest, and best agent for our requirements. Where blasting is necessary in mines giving out fire-damp it ought to be done when the bulk of the men are out of the pit. The holes should be charged and fired by the fireman, in order against the current of air; that is, commencing at the spot nearest the upcast shaft, and when practicable using a detonator fired by electricity. Gunpowder deflagrates at from 518° to 608°, according to the proportion of sulphur it contains. It is calculated that—

80 lbs. of powder are used in getting 1000 tons of coal.
700 lbs. " " 1000 tons of lead and other minerals.
170 lbs. " " 1000 tons of sandstone.
650 lbs. " " 1000 tons of granite.

The exports of powder in 1870 were 17,357,668 lbs., valued at 427,229*l*. France took 1,173,762 lbs., and Western Africa about 4,000,000 lbs. Mr. Glennie, of Birmingham, who had been present at extensive blasting experiments in some limestone quarries in North Wales, testified to the value of the E.S.M. powder, which he said many gentlemen of great experience considered to be the best blasting-powder which had ever been produced.

MINING LEGISLATION FOR THE PRESENT SESSION.

The Conservative Parliament has once more assembled, and the legislative session of the year 1876 may be said to be in full sway. During a long and tedious recess we have had many "extra Parliamentary utterances" (as the *Times* delights to call the speeches of honourable members who address their constituents during the recess), and amateur lawmakers have aired their respective grievances before anxious crowds, and presented their panaceas for such grievances before too credulous audiences. It is somewhat singular that, so far as we remember, during the whole of these speeches not a solitary allusion has been made to the great staple industries of the United Kingdom, and one would think, taking such "utterances" as a criterion for judging, that legislation was perfect with regard to our collieries, and that our factories and workshops are so remodelled and improved that further parliamentary care and supervision are altogether unnecessary, and would be regarded as injurious to the interests of those affected thereby. We think, however, that a little reflection would show the fallacy of such reasoning, and that whatever attention the great mining interests have hitherto received from Parliament, and whatever progress has been made in the scientific management of our collieries and the regulation of our workshops and factories, there is still ample scope for the energies of our representatives and for the zeal of one and all who would endeavour to protect the lives and secure the safety of those engaged in our mines and those gigantic establishments which have made the England of to-day, and which still enable her to hold her present proud position amongst the nations of the world.

We presume one and all will readily admit that the first object of a properly constituted Government is the protection of the lives and limbs of the subjects, and this it is which has made the noble efforts of Mr. PLIMSOUL on behalf of the seamen such a rallying cry throughout the country, and has enlisted the sympathy and support of all classes. We would not say one word to detract from the value of the exertions which this gentleman has put forth on behalf of that hitherto neglected and much-to-be-pitied class which he has taken under his protection. We wish him every success in his efforts, for truth to say many of the arguments advanced on behalf of the seamen will apply with equal force to the collier, and in many respects the condition of the two classes are pretty nearly identical. Both are engaged in most dangerous avocations, and whilst, on the one hand, a ship may suddenly spring a leak or run upon a sunken rock, and all hands lost, so a colliery may be suddenly fired by the inadvertent use of a naked light or drowned by suddenly striking into an old level, and the lives of all imperilled. And this is our contention. The seaman and the collier are both engaged in extremely dangerous work—both, therefore, should receive exceptional legislation, and the safety and condition of both should be made as secure as legislative enactments can possibly render it.

But our object, as representing the staple industries of the kingdom, is to draw the attention of those members of Parliament who are interested in colliery operations to the necessity which exists for endeavouring during the present session to obtain an additional number of Government Inspectors. This is due not only to the colliers themselves, but also to the proprietors. We believe we are correct in stating that it was about the year 1860, before any Government inspection worthy the name was made. Since that time the number of collieries which have been opened has increased in a ratio never before known. Legislation has tightened the responsibilities of proprietors, and rendered scientific operations in the ventilation of the pits obligatory. The number of Government Inspectors has not, however, been increased to any material extent, and the best mining engineers of the day are decidedly of opinion that, in order to secure greater safety in our collieries, there should be now a moderate increase of Inspectors. We would not have such an addition that colliery proprietors would be enabled thereby to throw off their responsibilities on to the shoulders of the Inspectors; but the present system of inspection is little better than a delusion and a snare, for it is utterly impossible that the present number can adequately perform the work. We take it that the duty of a Government Inspector should be not merely to inspect a colliery after an accident, and report upon the probable cause, but to periodically visit, as often as possible, collieries which are being opened or worked, with the view of giving practical suggestions as to the working and ventilation, to prevent accident and secure the lives and safety of the colliers. If such is the duty of the Inspectors, then we reiterate that their number is altogether inadequate, and until there is an increase the duties can never be efficiently performed. The able and valuable annual reports of our Inspectors conclusively prove that by far the greater number of accidents which occur are of a "preventable" nature, and doubtless a better inspection, which would secure practical suggestions in the working, would bring about a material reduction in that direction, and save many valuable lives.

Nor is this the only object upon which parliamentary legislation

could be beneficially applied, nor the only channel in which much good could be accomplished by our Imperial legislators. Our mining legislation is far from complete, nor is the condition of our factories so perfect that further reforms are unnecessary. True, we have a Truck Act virtually in operation, but practically the snake is "only scathed, not killed;" and in many mining districts this iniquitous system is as rampant as ever. If our Government, again, would do its duty it would make better provision for the education of the miners' children; and the various Acts for the regulation of our factories and workshops require careful supervision, and in many respects modification. We have no space to enlarge upon these latter subjects this week, but we have said enough to prove that the condition of our collieries and factories still requires and demands legislative care and attention. The appointment of additional Inspectors is one of vital moment, and should be urged with all the force and power at command. Our colliery operations are rapidly increasing both in numbers and importance, and their safe working requires great scientific knowledge and mature judgment. Every proprietor is, doubtless, sincerely desirous of doing his duty towards his men, and needs no further pains and penalties to induce him so to do, but as modern legislation has thought fit to materially increase the onus and responsibility of the owner and manager, it is only fair and right that they should receive that valuable scientific skill and assistance which properly qualified Inspectors only can afford, and in order to do this their number must be moderately increased.

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers), Pinner's Hall, Old Broad-street, write to us as follows:—

WEST PATELEY BRIDGE LEAD MINES (Limited).—This valuable series of mines has all the important physical and natural advantages of the adjoining Pateley Bridge Mines; intersected throughout their entire length (three-quarters of a mile) by the same proved rich productive veins—which can be worked cheaply and economically—capitalised at the same moderate amount (20,000*l.*), managed by equally qualified officials, and generally without a feature that does not favourably compare with the Pateley Bridge Mines, while there are many essential points strongly in favour of West Pateley. The Pringap, Sun, Lumb, Jarnot, Cleaver, Folly, Hessel, and the Haiden veins have nearly all been enormously rich in the Pateley Bridge Mines to a depth of 20 fms. under the joint adit level, and are now being extensively worked, showing courses of ore from 16 to 18 in. in thickness of pure metal, worth at least 50*l.* per fm.; the ore is found in almost a pure state, requiring little or no dressing. We have the testimony of the resident manager of the Pateley Bridge Mines (Capt. Charles Williams), referring to other lodes, that "the surface workings on the Rake and the Craven cross-veins prove without a doubt that the West Pateley Bridge Lead Mines are a most valuable property, and require only a small outlay of capital to bring them into a permanent and profitable state." By means of the main day level the whole series of mines can be continuously drained to a depth of nearly 60 fms. from surface, rendering available without the aid of pumping machinery a greater extent of mineral ground than can be extracted during at least the present generation. Among the many material advantages possessed by this property for an immediate and satisfactory development is the fact that this main day level has been already driven for a considerable distance parallel with the boundary. All the rich lodes can thus be readily and inexpensively tapped simply by cross-cuts, thereby increasingly profitable returns of lead may be expected almost forthwith. If a group of favourably situated mines, acquired upon most favourable terms, possessing a mass of rich veins, some having yielded enormous profits for more than 100 years, with unusual natural facilities for speedy and efficient development, are the unfailing bases upon which to found a grand and lasting success, West Pateley Bridge Lead Mines are without parallel.

PATELEY BRIDGE LEAD MINES AND SMELTING WORKS.—Personally a long experience has taught us to utterly disregard so-called "rumours" about mines; it is not so with the outside public. Even Pateley Bridge has not escaped; our clients have a large stake in this property, and we are bound to protect their interest, and shall always do so despite the manipulations of what is miscalled "the market." Upon our own responsibility we wrote to the manager, and have received the following reply:—

Pateley Bridge Mines, Pateley Bridge, Yorkshire, Feb. 10.—DEAR SIRS: Your favour of the 5th inst. did not reach me, and I note its contents, and beg most emphatically to deny of ever having furnished any false statements respecting the Pateley Bridge property, or attempted to overvalue its produce; and my calculations are based upon over thirty-five years of practical experience in lead mining, and will bear out the strictest investigation. I shall thank you for informing me who is the person that accuses me of making untrue reports, and I shall demand him as the law directs. Everything that I have said about this mine will be fully borne out in actual results. I have no interest in the mine, therefore I have no ends to gain by puffing it up; but I have no hesitation in saying that the Pateley Bridge will stand at no distant date second to none in the North of England. In fact, the eastern section of the property will make a great mine in itself. The Sun vein, which yielded thousands of tons of ore above the Gill-side level, stands nearly whole under that day level, and is drained by the Eagle level to a depth of 50 fms. under the present workings, and is now in the bottom of our shaft over 5 ft. in width, and opening out into a good course of ore. There are also four other parallel veins equally as productive—Farnet, Folly, Hessel, and Haiden veins. The great feature is that the Jarnot, Sun, and Folly veins underly south of the Hessel and Haiden veins underlay north, and all of them will meet together at a certain depth. In the western part of the mine is the Rake vein, with courses of ore now standing 18 in. thick, of nearly pure galena; and when the engine-shaft is completed all these courses of ore will be available for working with 20 fms. of backs. The east cross-cut will also intersect Fielding's, Sir Thomas', and Green G.oores veins, all of which proved very rich in the levels above. The vein in the west cross-cut in the 20 will fall in with the Gulf and Lumb veins, and form themselves into a rich course of ore. The Pringap vein is showing good ribs of ore are now in the driftage, and there are also numerous other important points that will come off in a short time. The fact is the merits of this mine can never be over-estimated.—C. WILLIAMS.

ASHTON AND WEST ASHTON (Lead).—The shares in both these mines continue to attract a considerable amount of attention. To the information already communicated we have only to add that the cross-cut at boundary shaft, in West Ashton, is in 5 fms., and that the lode will be reached in about 2 fms. further driving. The shaft will be down to the 60 in something like six weeks; the ground is very easy and favourable for sinking; set at 14*l.* per fm. The strong "feeders" or "droppers" continue in the shaft, and it may be mentioned, as indicating the value attaching to the general prospects of the mine, that the working miners employed in the cross-cut are purchasing shares. Possibly this is the best report that can be published.

PORT NIGEL (Lead).—This mine is situated in the Assheton district, in close proximity to Tan-y-Bwlch, where the lode at the deepest part (80 fms.) is worth over 150*l.* per fathom. The lode in Port Nigel is in the same strata, and has yielded 240 tons of lead during the year (at the rate of 20 tons per month). This output has been obtained from workings about the 44; in Tan-y-Bwlch the lode did not begin to be productive above the 60. At Port Nigel a 56 fm. level has been extended 21 fms. west, the lode averaging from 14*l.* to 20*l.* per fathom, the present forebreast yielding a good mixture of lead and blende; the 56 east has been extended 40 fms. through a lode averaging in value from 8*l.* to 15*l.* per fathom. The eastern end in this level is approaching the long run of ore ground driven through in the upper level; there are 30 fms. of good ore ground in advance of the 56. The 44 has been extended east 60 fms., and the 56 fm. level west 21 fms. These two points are more than 80 fms. apart; of this distance more than 50 fms. have been driven through good productive ground. The present return from this depth is between 20 and 25 tons per month. The engine-shaft is sinking below the 56; the feature of importance here is that the lode is most promising, producing fine rocks of lead, its component parts being quartz, oxide of iron, or gossan, carbonate of lead, copper, and lead ore. This lode is described as masterly and strong, with streams of water bubbling up from the bottom. Remembering what has been done since the present company commenced operations, and viewing the valuable points to come off in the next two or three months, there is every probability (the manager writes) of this young mine turning out second to none in the Principality. It is the opinion of all practical and scientific men that depth only is required to make Port Nigel a lastingly profitable mine. These shares are in demand at 1*l* 2*l* to 2*l*; there are 10,000 shares. This property will soon command a considerable amount of attention.

ROOKHOPE VALLEY (Lead).—Hitherto our remarks have referred more especially to the situation of these mines, their geological conditions, the great richness of the Beaumont Mines, and the present state and prospects of the "No. 1" Mine. It is to be borne in mind that the previous company during its earlier period, and up to the time nearly the whole of its capital had been expended did not carry out any systematic explorations, therefore the realisation of the results then anticipated may be with confidence looked for at no distant date. From the "No. 1" Mine alone, when placed in an efficient condition of development, the returns should be not less than 100 tons per month. But to bring the entire capabilities of this section of the property into force it will be necessary to sink the No. 1 engine-shaft to the 3-yard limestone (some 18 fms.), and the sinking carried on regularly through the whole of the productive strata to the great winsill. This done, and five or six levels kept going at a rate of 10 fathoms per month respectively, all in courses of ore, not only on Great Red Lode, but on Golden's and the side lodes, Rookhope Valley Mines should soon vie with the best of Mr. Beaumont's mines in the county of Durham.

BLUE TENT HYDRAULIC (Gold).—Recent shareholders appear unaware that the linear extent of their property on the course of the channel is something more than a mile, varying in depth from a mere coating of the rim-rock on the north to a maximum of 100 ft., to the south, consequently has an average depth of 300 to 500 ft. The topography of this region, the relative position of adjacent mines, together with a difference of planes of rim-rock, and the differences in character, texture, and colour of the gravel in the different workings, suggest the idea that this has been the point of confluence of two or more ancient streams, and that the remarkable depth and extent of alluvium found here is owing to the inpour and accumulation of sand and gravel from various directions upon the same focal area; but whatever may be the true explanation of the accumulation of the vast compass of alluvium amassed here, its value has been fully attested by the various washings.

OREGON HYDRAULIC (Gold).—The letter in last week's *Mining Journal* was very satisfactory as showing the rich character of the gravel. This week further intelligence is to hand, from which it would appear that the whole of the machinery was on the ground, and that the Thos claim was completely fitted, and washing steadily progressing. The preliminary clean-up was entirely satisfactory. The next claim will be ready for washing by the middle of March. Water is in abundance, and everything promises a great success.

CONDES COMPANY OF CHILI (Silver).—In previous notices it has been explained that these mines are situated in the mountain range of the Andes, known as the "Hill of Valenzuela," 33 miles from Santiago, the capital of Chili. The principal part of the road from Santiago to the mines is not sufficiently good for carts, and the traffic is at present carried on by mules; but at a comparatively small expense this road can be made available for carts; this expense would be contributed to by the adjacent mines, and greatly assisted by the Chili Government, always ready to forward the industry and advancement of the country. The geological nature of the ground where these mines are situated is of a granite called "crenita," in which are found many other mines of considerable importance. Some of the lodes cross the mountain from east to west, and then from north to south, causing a series of intersections, where the lodes are always found exceedingly rich. The minerals consist of lead, sulphate and carbonate of lead, carbonate of copper, peroxide of copper, and quartz. The width of the lodes varies from 1 to 50 metres. Up to the present only one mine has been extensively worked; the others have their workings commenced, consisting of a shaft 10 yards in depth, sunk upon the lode. Judging from the appearance of these mines, and comparing them with what the leading mine was at the same depth, there seems no reason to doubt they will eventually prove equally valuable. Practical testimony affirms that the property even in its present early stage of development is capable of returning 300 tons of ore per month from "ends" alone, and is estimated to leave a profit of 10*l.* per ton; this would give 300*l.* per month, or 36,000*l.* per annum, upon a capital of 70,000*l.*; in other words, equal to 50 per cent. per annum.

RICHMOND CONSOLIDATED (Silver).—When will be verified by results the announcement cabled by the manager some months since, that "returns will be increased forthwith?" Startling was this announcement: when we had the hardihood to point out, from practical causes, the impracticability of this sensational statement being confirmed by results, and warned our clients accordingly, all sorts of inuendoes were uttered against us. We pointed out that the estimates as to the ore reserves were entirely fallacious, quoting passages from the weekly reports as they appeared in the *Mining Journal* in support of our statement. From then till now the cabled returns have not increased, but, on the contrary, decreased. Upon well-authenticated authority we can state that the mine in its present condition will be unable to yield for many months a supply of ore sufficient to keep three furnaces in full work. The "New Chamber," about which so much has been written, is well nigh exhausted, and the vein in the winze sinking below the 600-foot level (the 700-foot level being the lowest point of operation) is not more than 6 ft. in width. Clearly, where ore had been supposed to exist limestone has been found, and the theories hitherto propounded have been falsified by development. Another item of information with which shareholders should have been made acquainted is that one of the furnaces is in such a condition as to render it absolutely necessary to pull it down. It has been stated that a weekly out-put of less than \$40,000 leaves but a small margin of profit; but upon this point we have no information to guide us, nor does it appear that on this side the data is to hand upon which any certain statement can be made. This point is of sufficient importance to demand an immediate explanation.

I. X. L. (Gold and Silver).—As this property will soon assume a prominent position, it may not be out of place to mention that it is situated in Scandinavian Canyon, near Silver Mountain, Alpine County, California, and adjoins the Exchequer Mine; in fact, it forms the southern extension of that property. It was upon the developments in the I. X. L. that the undeveloped portion of the same lodes was taken up by the Exchequer Company. A considerable amount of work has been done in the upper levels, and a large quantity of valuable ore developed, ranging from \$80 to \$300 per ton. A shaft has been sunk 200 ft., and a drift driven up to within 200 ft. of the bonanza opened out in the upper levels. Mr. J. J. Cooper and other well-known authorities describe the lode as a true fissure vein. The total capital is 100,000*l.*, in 1*l*. shares. It is estimated that an out-put of 20 tons per day can be made; if only an average of \$100 per ton this should be equal to 30*l.* per day, or (say) between 40,000*l.* and 50,000*l.* per annum. The status of the company is beyond question. The shares are quoted at 1*l* to 1*l*.

STOCK EXCHANGE GENERAL MARKETS.—Holders of stocks of nearly all kinds have a much greater interest than they may suppose in the possible effect arising from the manner in which it is proposed by the British Government to pay the 4,000,000*l.* sterling on account of the Suez Canal shares. It seems that the National Debt Commissioners will be required to pay this large amount, and that the 200,000*l.* a-year to be received in respect of shares is to be paid over to the Commissioners. The Government will have to pay not more than about 3*l* per cent., and the difference between this and the 5 per cent. received is to be used in repaying the loan. It is calculated that in about 35 years the whole advance will have been repaid. But the question in which holders of stocks have an immediate interest is the influence this proposed operation may have upon the money market. Clearly the Commissioners have not 4,000,000*l.* at immediate command, and, therefore, it may be necessary to sell the stock to supply the required amount. As we have said, this is a consideration which affects the stock markets mainly. Consols are very high, and there are few issues to absorb the accumulating resources of investors, and the success with which the money for the purchase of the telegraphs was raised by the secret sale of Government stock encourages the expectation that only a moderate effect may be produced.

FOREIGN BONDS.—Egyptian stock has been the great pivot around which there has been the greatest amount of speculation during the week. Opinion appears to be gaining ground that the cause of the

present embarrassments of the Viceroy are bad financing and excessive zeal in the construction and encouragement of public works; if the Khedive can be induced to restrain his enterprising spirit it seems tolerably clear that the resources of the country are capable of bearing the burden which rests upon them, but while the future of Egyptian financial affairs seems full of hope it cannot be said to be free from uncertainty. Mexicans have been dull, complaints are with justice made of the years which have elapsed since the so-called committee have met those they are supposed to represent. Statistics show a yearly increase of prosperity since 1866, and it is said that the Mexican Government have been purchasing the bonds.

RAILWAYS.—North British in the early part of the week were prejudiced by less favourable dividend rumours. Metropolitan and District have fluctuated as rumours, favourable or otherwise, were circulated concerning the passenger duty. Towards the close nearly all home railways were flat; the explanation is still less favourable for dividend anticipations. Bristol and Exeter declined on the proposal to pay for the present a dividend of only 1*l* per cent. per annum on account of the past half-year. London, Tilbury, and Southend stock has also fallen, from which it may be inferred that the result of the past half-year, the first since the termination of the guarantee, is not going to prove very favourable. Grand Trunk securities have further declined upon the proposal to raise 400,000*l.* new capital by debenture stock.

MISCELLANEOUS.—Telegraph Construction shares have been lower upon the dividend for the past year, being 15 per cent. as against 20 per cent. and a bonus of shares for 1874. Bank shares, including Anglo-Egyptian, Bank of Alexandria, Bank of Constantinople, Bank of New Zealand, and London and County, have severally shown favourable movements. London and Westminster, however, flatter. The Bank rate of discount remains at 4 per cent.

GEOLOGICAL SOCIETY OF LONDON.

The annual general meeting of Fellows for the election of the council and officers for the ensuing year, and for the award of honours, was held at the society's rooms, Burlington House, yesterday. Mr. JOHN EVANS, F.R.S., President, in the chair.

The usual preliminaries having been disposed of, the report for the year was submitted. It appears that the total number of members is 1290, being a net increase, after deducting deaths and expulsions, of 58 as compared with the preceding year. The income was described as satisfactory, the revenue having amounted to 3097*l.* 18*s.* The expenditure was 3382*l.* 5*s.* 9*d.*, showing a deficiency of 284*l.* 3*s.* 9*d.*, which was accounted for by extraordinary payments incurred through the removal of the society's apartments from Somerset House to Burlington House. It was announced that Mr. Ormerod had furnished the MS. for the supplement to his classified index of the publications of the society, and that Dr. J. J. Bigsby, F.R.S., had given a medal to be awarded annually by the council. At the suggestion of Mr. A. T. T. seconded by Dr. Gwyn Jeffreys, F.R.S., an amendment was made in the report that the donation of 200*l.* from the widow of the late J. Yates was "in the intent of an intended bequest of her late husband," the object being to show that it was not derived from the fund which, by an accidental error of the testator, was appropriated by University College.

The PRESIDENT then called on Prof. Huxley to come forward, and said that he was a source of great satisfaction to place in his hands the Wollaston medal, "in recognition of the distinguished services he had rendered to geological science by his valuable researches upon the paleontology of the vertebrates and on paleontological investigations in general connected with the philosophy of geology." The services of Professor Huxley had been so great that it was necessary for him to refer to them. For twenty-five years he had been engaged in biological researches which had thrown the greatest light upon the subject of all organisms, but his greatest services to the science of geology had been upon, upon three occasions, either as president or acting for the president, he had delivered three addresses, which he wished it were in his power to mention that afternoon.

Prof. HUXLEY said that if he had been replying to the searching critics by which he had been met in former days he would have had no difficulty in finding words to express himself, but on the present occasion it was quite different. He confessed that he had a constitution which enabled him better to bear storms than to deal with sunshine, and it was for this reason that he found it difficult to reply to the president's panegyrics. He could assure him that he would not forget this occasion, as he considered the award the highest honour that could be conferred. He knew of no case in which the justice of the council's award had been disputed, and perhaps this was one of the grounds upon which he might hope that it had been rightly conferred in the present case. His endeavour in his contributions to paleontological science had been to attempt to work out Kant's idea, where he spoke of geologists as the archeologists of Nature, and he felt assured that the settlement of the question of evolution lies within the region of paleontology.

The PRESIDENT called upon Dr. Jeffreys to accept the balance of the Wollaston fund on behalf of Prof. Seguenza, to aid him in his paleontological researches, especially in the Sicilian tertiary.

Dr. GWYN JEFFREYS said that, in the absence of the foreign secretary, and one having great regard for Prof. Seguenza, he had the pleasure of offering Prof. Seguenza's best thanks for the award, which would be very highly appreciated by him. He like many other foreign geologists, was not overburdened with rich, and had found great difficulty with the small allowance which he received from the Italian Government as professor in pursuing his paleontological researches.

The fund would be of great value to him.

The PRESIDENT, in handing the Murchison medal to Prof. Ramsay for transmission to Prof. A. C. R. Selwyn, the director of the Geological Survey of Canada, "in recognition of his services to Silurian geology," remarked that the award of this medal to Prof. Selwyn was particularly appropriate, considering the extensive researches which he had made in the very department of geology in which he had been engaged.

The PRESIDENT, in presenting the Lyell medal and fund to Prof. John Morris "in testimony of appreciation of his long and meritorious services in a most interesting branch of geology and paleontology, and to assist him in carrying on his valuable observations and researches," said that this was the first occasion on which the medal and fund, bequeathed to the society by the late Sir Charles Lyell, had been at the disposal of the council; and, in considering the award of it, the opinion of the council was unanimous that it was impossible to find a more worthy recipient than he. In awarding it to him, he might remark that, although from the time of its recent foundation the medal was presented last, it took equal rank with any of those which the council had had.

With the medal they had awarded him the entire fund, and he congratulated him that the liberal terms of the bequest enabled them to do so. Prof. Morris's Catalogue of British Fossils had long taken rank amongst the most useful works connected with geology; his lectures had done much to spread a taste for geology; and in the observations he had made in the course of the discussions which had taken place at their meetings all must have been astonished at the minuteness of his knowledge of every branch of their science, and the surprising retentiveness of his memory, which enabled him to give them all the full advantage of it.

Prof. MORRIS said that by receiving at his hands the first award of the medal he could not express how deeply he felt the distinguished honour the Council of the Geological Society had conferred upon him. With regard to the works of an author so well known as Sir Charles Lyell, and one who had so much enlarged the bounds of geological knowledge, it was unnecessary for him to refer to them, but he must say that it was a review of Sir Charles Lyell which led him to consider a branch of the science in which he had since taken much interest, and it was the indefatigable labours of Lyell that led to the review of Hutton's views. As to himself, he felt that the value of the award was much enhanced by associating his name with that of Lyell.

Mr. A. T. T. asked the President permission to make one observation in connection with this award. He would like to be mentioned that Prof. Morris's name had very constantly appeared in their Transactions, and he had contributed many valuable papers; yet he had contributed in a still larger degree to the great assistance he had given to others in their labours; this assistance, although invaluable, could receive no substantial recognition, but the fact should be recorded, that it might be widely known how much he had done for the advancement of science.

The new council, in which Rev. T. G. Bonney, Admiral Spratt, C.B., Professor Ropert Jones and Morris, and Mr. Judl, replaced Messrs. Meyer, Moore, and Sorby, and Professors Tennant and Hughes (the other members being re-elected), were elected, and the officers for the ensuing year were chosen; after which the President read an elaborate and highly interesting address, an abstract of which will be published hereafter.

THE ST. GOTTHARD TUNNEL.—Some curious particulars concerning the piercing of the tunnel through the St. Gotthard are contained in a letter addressed by M. D. Colladon to the French Academy of Sciences. It is stated that the 14,920 metres, constituting its total length (2687 more than that of Mont Cenis), 1784 metres were pierced in 1874, and 2428 in 1875. The maximum annual tunnelling at Mont Cenis was 1635; it occurred in 1870; the St. Gotthard, therefore, exceeds the latter by 793 metres. This is explained by the circumstances that the liquid pit-ton pumps of Mont Cenis did not bring up to more than 1000 litres water at each stroke, and could not give more than 16 strokes per minute, the limit being to 8 the number of turns of the machinery. This slowness is due to the great size of the engines, performing from 150 to 350 turns per minute. A new system of pumps was, therefore, had recourse to, in which the piston and rod are hollow, and receive through the extremity of the latter a circulation of water inside, which keeps them cool. The air is compressed by these pumps to the amount of eight atmospheres at the working rate of from 150 to 200 strokes per minute. The compressed air issues from the cylinders at a temperature not exceeding the ambient temperature by more than from 15 to 20° Cen. There are present, at Göschenen and at Airolo, four turbines working 12 small pumps. The quantity of air obtained under the pressure of 8 atmospheres is 1000 cubic metres per hour, and all this machinery occupies a shed having a surface of 350 square

metres at Gœschenen and another of 200 square metres at Airolo. This, compared with the arrangements at the Mont Cenis Tunnel is a great improvement; since the 60² pumps installed at Bardonneche in order to replace the rams produce from 60 to 700 cubic metres of air per hour, under the pressure of 7 atmospheres, and fill no less than 7 buildings, each having a surface of 300 square metres. The perforating apparatus of the St. Gotthard is also superior to that employed at Mont Cenis. The work, commenced in October, 1872, is to be finished in 1881.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Feb. 12, 1876, dated Morro Velho, Jan. 1:—

MEASUREMENTS OF THE EXCAVATION, etc.	Fms. ft. in.
From bottom of sum to end of ground east	3 0 0
From bottom of sum to top of first stope west	6 3 0
From top of first stope to top of second stope west	8 3 5
From top of second stope to top of third stope west	7 1 6
From top of third stope to top of fourth stope west	24 1 9
From top of fourth stope to top of fifth stope west	6 2 10
From top of fifth stope to top of sixth stope west	7 1 6
From top of sixth stope to bottom of driving	10 3 6
Width of the lode in the sum	5 0 0
Driven west during December	0 5 0
Vertical sinking for December	1 1 5
MEASUREMENT OF GROUND STOPED BELOW THE DRIVING EAST:—	
From centre of shaft "A" to end of ground east	7 5 0
From end of ground to bottom of driving east	7 5 5
REDUCTION DEPARTMENT.—The stamping mills and general reduction machinery have been kept steadily at work, except when under necessary repairs, during the last half of the month. The supply of water has, owing to the excessive and unusual drought we have experienced, somewhat fallen off, and the stamps have, therefore, been going at a lower rate of speed, and doing less than the average duty of late.	

GOLD EXTRACTED TO DATE.—The produce extracted during the second division of December, a period of 11 days, amounts to 16,166 8 oits., or 1853-7687 ozs. troy.

It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From mineral stamped	13,579 0	from 1800	8 699
Killas experiment	445 5	"	1 784
Re-treatment	1,142 3	"	— 557
Total	16,166 8	"	2 49 = 7 890

Equal to 1863-7687 ozs. troy. 9101 oz. troy per ton.

Advices received Feb. 15, ex Neva, dated Morro Velho, Jan. 12.

GENERAL OPERATIONS.—Since I last had the honour of addressing you our general operations have been rather limited, owing to the supply of water being insufficient for the requirements of our machinery.

Favourable rains have again set in within the past few days, and I hope that more satisfactory duty will now be accomplished by both the mine and reduction machinery.

PRODUCE FOR DECEMBER.—The gold return for the month of December amounts to 43,925 oits., or 5340-2565 ozs. troy, and has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From general mineral	43,850 0	from 5214	8 410
Killas	1244 2	"	1 817
Total	45,094 2	"	8 763
Re-treatment	3,541 7	"	— 601
Equal to 45,835 9 oits., from 5892 tons = 8 254 oits., or 9068 ozs. per ton.			
Sundries 289 1 oits.			

Total .. 48,925 oits., from 5892 tons = 8 254 oits., or 9068 ozs. per ton.

The above produce shows a considerable falling off as compared with that of the previous month. This was caused chiefly by a large quantity of killas being stamped in the first and second divisions of the month. In the third division a considerable improvement in this respect took place, the average yield of the mineral then treated being fully 1 oit. per ton more than that of the other two divisions.

COST AND PROFIT.

The produce being .. 49,925 oits.
Deduct loss melting into bars 301 3 "

Cost .. 43,623 7 at 7s. 9d. per oit. = £19,841 13 8

7,352 14 4

Profit .. £11,488 19 4

MINE DEPARTMENT.—During the present month we have had a better and more regular attendance of natives at the mine, and very good duty has, therefore, been done in sinking, driving, and quarrying, but owing to a diminished supply of water to the hauling machine, the output of mineral has been under the average of the last four months. The mineral hauled through the A shaft from the sum, and the stope west of it, continues to be of a good, rich quality; and now that our new hauling shoot is completed, and the rains have set in again, I hope to obtain an equally good supply of mineral from the B shaft.

REDUCTION DEPARTMENT.—The duty performed by the stamping mills in the month of December, though very good, was not equal to that of the previous month, owing to stoppages for important repairs and the supply of water falling off in the latter part of the month. The total amount of mineral reduced is 5592 tons, equal to 190 tons per diem, and the amount of stamping and collected and amalgamated 6224 cubic feet, which yielded gold at the rate of 1811 oits. per cubic foot. The loss of gold on the process during the month is 1-681 oits. per ton, and of quicksilver 191 11.

GOLD EXTRACTED TO DATE.—The produce extracted during the first division of January, a period of eleven days, amounts to 16,911 oits. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
From general mineral	15,391 5 from 1700	"	8 999
Killas	558 0	"	1 990
Re-treatment	1,086 5	"	— 543
Total	16,941 0	"	2 000 = 8 470

Equal to .. 1953-216 ozs. 9765 oz. per ton.

Throughout this division the stamps were driven at a low rate of speed, and they worked on an average only 23-66 hours per diem, the quantity of mineral reduced was, therefore, rather small, being a total of 2000 tons, and at the rate of 150 tons per diem. Now, however, that the rains have again set in I hope more satisfactory duty will be performed by all the reduction machinery.

The general health of the establishment is good.

The following telegram has been received:

On Jan. 21: Produce 11 days (first division of January) 16,750 oits.; yield, 8 9 oits. per ton; profit for the month (December), 11,400.

On Feb. 2: Produce 10 days (second division of January), 17,250 oits.; yield, 8 3 oits. per ton. Very dry, and water short.

On Feb. 14: Produce for month (January), 52,500 oits.; yield, 8 7 oits. per ton.

DON PEDRO NORTH DEL REY.—Report for December, 1875:—Produces and Cost: Produce, 4342 oits., value 1845 7s. The above cost includes exceptional items—125 travelling expenses; 134 import duties.—First Division of January, 1876: Produce weighed, 2045 oits.; remainder, one month, 5000 oits. Telegram from Rio, Feb. 12, referring to a later date than the above report, advised 5200 oits. for the month of January. Deficiency of water.

SANTA BARBARA (Gold).—Mr. Hickey, Pari, Jan. 12: During December 1870 tons of mineral were stamped, yielding 3-038 oitavas per ton, or a total of 312 oits. of gold, which, valued at 8s. 6d. per oit., amounts to 14077. 12s. as the estimated value of the produce for the month. The value working cost for the same period was at exchange 271/2d., 981 1/2d., thus leaving an estimated profit of 423 7s. 6d. for December. The stamping and capital expenditure during the month amounted to 47 3s. for new black's houses. Mine: The mine was not looking quite so well as when we last advised. In No. 1 and No. 2 stope, towards the hanging-wall, it had become more terminated with killas and hordele, causing a decrease of about 33 per cent. in the yield of the mineral derived from these points. The lode in No. 3 stope and adit maintained its favourable size and appearance, and was of good productive quality. In the shaft the lode also keeps its favourable appearance, but owing to the turn it had made in the footwall, was not so wide as in the commencement of the month. Its present size is 8 ft. The yield per ton, owing to the less productive stone from No. 1 and No. 2 stope, was lower in December than it has been for some time. Yet, looking back at the last 12 months, it will be seen that during that period the average yield per ton has amounted to 3-310 oits. of gold, which taking into consideration the shallow depth of the mine, cannot but be considered as a very encouraging result. The shaft had been sunk 1 fm. during December. Quantities of stone raised during the month 1478 tons, of which 355 tons were rejected at the spelling floors as refuse stone, and 90 tons remained unstamped at the end of the month. Average quantity of stone raised per borer for the month 33-33 tons.—Surface: The water supply had fallen off greatly, owing to the unprecedented dry weather, no rain having fallen for three weeks. One wing of the new Zenzala for blacks is approaching completion.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka, Nevada: Hall, London: Week's run, \$30,000. Two and a quarter parts.

EXCHEQUER.—L. Chalmers, Jan. 24: I wrote you last on the 17th, and I have now to report for the information of the board. Our team arrived on Thursday, after going to Tahoe for a strong sleigh. I purchased them and brought in a full load of mill machinery, and reported the road very bad, but the sleigh splendid. Hauling to the mine being at present impossible, I sent the teamster back for another load of machinery. When he returns, about Saturday, if the present storm does not stop him, we shall put in the conveyors and elevators and will bring with him. I sent the eight ox team ahead to open the road as far as Woodsford, from which place they will return with a load of hay. I do not yet attempt to open the road to the mine, the only communication with which is on snow-shoes. Brown arrived and took out the old mortars on Friday, and the blocks are being carefully levelled for the reception of the new double discharge rammers in rear of the battery ready to go in. Lucas is busy with the elevator and conveyor wood work, Mewbauer and Rica making doors, windows, &c., for the new buildings. I sent you my correspondence with B. O'leary as to his furnace, which is simply three old reverberators combined with his patent mechanical apparatus for stirring the pulp. I now send you his offer to build one, which is too costly by far to suit me, even though he makes a present of the royalties should we adopt it. I admit that for the best furnace out, for this reason—that it is an admissible fact that no furnace can take out so high a percentage of the precious metal as the reverberatory, its only drawback hitherto having been the cost of working, caused by the stirring requiring so much labour in a country where it costs so dear, as much for the mill. At the mine the setting of the new boiler was completed on Thursday, and is well done. You have now a boiler that will surely soon be sent down 1600 ft. and more, but your hoisting engines will soon have to be replaced by more powerful ones. When they have completed the last of the 400 ft. now constructed for them will have done all I claimed for them. In the 300 ft. level, now 15 feet from the cross-cut north, we have struck a 2 1/2 ft. 1 1/4 ft. of rich ruby and silver glance sulphurite, assays from which give me—Gold, 33-94; silver, 288-33-33; this is the average of four assays from four different pieces. After having had to report but indifferently on our first cutting the new boiler was completed on Thursday, and is well done. You have now a boiler that will surely soon be sent down 1600 ft. and more, but your hoisting engines will soon have to be replaced by more powerful ones. When they have completed the last of the 400 ft. now constructed for them will have done all I claimed for them. 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RHEIDOL.—John Ridge, Feb. 12: We have taken down the part of the lead ore left standing in the 30 fms, which yields good branches of lead ore, but it is not turning out quite so well as when last taken down; this is accounted for by a joint crossing the end from the north side, which has disordered the lode a little, but it is looking better again, and will, there is no doubt, improve as we get away from the influence of the cross-joint. The end is letting out more water than we have hitherto had in this level, and the lode (5 ft. wide) is harder and stronger than anything seen in this part of the mine, which is a very favourable indication for the production of lead ore.

ROMAN GRAVELS.—Arthur Waters, Feb. 16: The 95 fm. level, driving north of old engine-shaft cross-cut, is at present in a small lode, and not of much value. Twitches like the present occur here and there throughout the mine on the Roman vein, and it is the rule to expect such things between the branches of lead ore. We intend driving this level to the north shale. The 95, south of said cross-cut, is now about 9 ft. beyond the junction of the caunter lode, the value of the end being 4 tons per fathom. The four stope in the 95, north of Tittley's winze, are worth on the average 20^t per fathom. The four stope in same level, south of Dorricot's winze, are worth in the aggregate 10 tons of lead ore. The two stope north of the said winze are worth 12^t per ton each. The new south engine shaft is down 9^t fathoms below the 80, south of Corfield's, is to a point where the Sawpit lode forms the footwall of the Roman vein; and I would add, this junction of the lodes is met with sooner here by 12 fathoms than was the case in the level above. And I am of opinion that, with the Sawpit underlying north-east 2^t in 6 ft., and the Roman vein east at the rate of 8 in. in 6 ft., each succeeding level will prove the junction in question to be coming nearer to the new engine-shaft. The 80 end is now worth 7 tons per fathom, and seeing how the 80 and 50 fathom levels improved in the ground south of the point referred to, we may conclude on having only now got up to the commencement of the great south run of ore in this (the 80 fm.) level, notwithstanding the rich ground lately passed through. The four stope in back of the said level, south of Corfield's, are worth together 13 tons lead ore. The winze below the 65, in advance of the 80 end (and going down directly south of the junction before mentioned) is down 4^t fms., by the side of a lode 5 ft. to 6 ft. wide, a rich course of lead from wall to wall. We bore into the lode to prove its value at present depth, and found nearly solid ore to the bottom of the hole 2 ft. The 65 end is now 42^t fms. south of the above-named winze; lode at present worth 3 tons per fathom. The stope in back of this level are yielding ore in their usual quantities. We are getting out foundation for new engine-house, raising stone for ditto, and so forth.

ROSEWALL HILL AND RANSOM UNITED.—S. Buglehole, Feb. 16: The lode in the new flat-rod shaft, sinking below the 35, is 2 ft. wide, worth 25^t per fathom. The 35 west is worth 6^t per fathom, and the 35 east is worth 5^t per fathom.—Goole Pelias Lode: In the 25, driving east and west, we have a large and well-defined lode, worth 8^t per fathom.—North Lode: The lode in the 25, driving west, is 3^t ft. wide, worth 5^t per fathom, and looking very promising. The 35 cross-cut, driving north towards this level, is progressing very satisfactorily, and in the adit level west good progress is being made.

ST. AGNES CONSOLS.—Wm. Vivian, Feb. 17: In the 72, west of south cross-cut, the stope in the back are worth 10^t per fathom for copper ore. The stope in the bottom of the same level are worth 7^t per fathom for tin. In the 72, east of north cross-cut, the stope in the back are worth 7^t per fathom for copper ore. The 84 cross-cut, driving south to intersect Wheal Kitty lode, is driving by six men at 13^t per fathom.

ST. PATRICK.—Wm. Francis, Feb. 16: All necessary securing being made in the great cavern lately cut by the 90 yards cross-cut north, and a scaffolding with stage erected, the cross-cut is now being pushed forward with all speed, and with the advantages we now hold rapid progress will be made with, it is hoped, quick results. The bottom cross-cut continues in firm limestone without material change.

ST. CARN BREA.—W. Rich, J. Knottell, Feb. 16: We have not been able to make any great progress in the 175 ends, east and west, during the past few days, owing to an influx of water. We have intersected the lode east of the cross-course, in the 164 end, which has completely drained the 150 east; there is a large stream of water coming from the 164 end. We hope to have a good improvement in this level as we extend away from the influence of the cross-course. The rise in the back of the 164 west is worth 10^t per fathom; the ground is hard and the progress slow. The 164 west carries good stones of rich grey copper ore, and the lode looks likely to improve. The stope in the bottom of the 150 east is worth 12^t per fathom. The stope in the back of the 130 east is worth 10^t per fathom. We sampled yesterday about 80 tons of copper ore.

SOUTH GREAT WORK.—S. J. Reed, Feb. 17: Owing to a falling off in value of some of the principal points in the mine, and consequently diminished returns of tin, the operations have been restricted to the driving of one end, the 55 west, where the lode in the past few days has shown a considerable improvement, being now 3 ft. wide, and worth 12^t per fathom. This is what I consider to be the dip of the pass through for many fathoms in the 35 and 45, and no doubt will further considerably improve if developed. I would recommend that a cross-cut be put out at the adit level to intersect two side lodes, both within a distance of 20 fms. from the Great Work lode, where tributaries have recently been raising considerable quantities of tin; while this is being done, tributaries can be working on the Great Work lode at the adit level, where tin can be raised in a sufficient quantity to help materially the expense of the other points in operation, so that little, if any, loss would be sustained. These operations, if carried out in the manner I suggest, would in a few months prove the lodes at the point named; and in the event of meeting with a discovery similar to what was met with in the adjoining mine, it would place the company in a self-supporting position, and recoup the shareholders for their outlay. I estimate the cost of driving the cross-cut, including all other expenses (should the lode at the flat rod shaft fall off) at from 60^t to 70^t per month, which would be nearly met by the returns of tin from tributaries; and I may add that there are many hundreds of fathoms of ground laid open, and available for stoping, and which can be worked away without the use of pumping machinery.

SOUTH TOLCARNE.—Joseph Vivian and Son, James Paul, Feb. 17: The engine-shaft is now about 18 ft. below the 40, where the lode is about 2 ft. wide, and unproductive.—Fraser's, or Tin Lode: In the 40, east of cross-cut, the lode is 3^t ft. wide, and producing tin worth about 14^t per fathom. In the same level west the lode is 1^t ft. wide, producing tin worth about 12^t per fathom. In the winze sinking under the 30 we are down about 7 ft., where the lode is 4 ft. wide, kindly in appearance, and yielding a little copper ore, but not enough to value.

SOUTH WHEAL FRANCES.—A. T. James, Feb. 12: Pascoe's shaft is sunk about 9 fms. below the 155; a hard floor of elvan is now crossing the shaft, and this has rather squeezed the lode, which is now 2 ft. wide, producing low-quality stuff. We anticipate a favourable change shortly. The shaft is being sunk by nine men, at 20^t per fathom; 13 ft. have been driven during the past four weeks, and we hope to make similar progress in the ensuing month. The rock is granite, of a hard and compact nature, crossed by small veins of capel, but no symptoms of the great lode have yet made their appearance. Eight men are employed in setting in dams &c., in the 154, to keep up the water from the bottom of Pascoe's shaft, in case an accident should occur at Marriot's.

TANKERVILLE.—A. Waters, Feb. 17: The 161, west of Smith's winze, west of Watson's shaft, is driven 9 fathoms, in a lode averaging 9 ft. wide, worth 10 tons per fathom; the lode worth 1 ton per fathom. The 152, driving west of shaft, and his rarer squeezed the lode, which is now 2 ft. wide, producing low-quality stuff. We anticipate a favourable change shortly. The shaft is being sunk by nine men, at 20^t per fathom; 13 ft. have been driven during the past four weeks, and we hope to make similar progress in the ensuing month. The rock is granite, of a hard and compact nature, crossed by small veins of capel, but no symptoms of the great lode have yet made their appearance. Eight men are employed in setting in dams &c., in the 154, to keep up the water from the bottom of Pascoe's shaft, in case an accident should occur at Marriot's.

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TRELEIGH WOOD.—E. Hawking, W. Goldsworthy, Feb. 11: We have to-day driven the 56 cross-cut, north of the engine-shaft, by six men and three boys, to drive the 56 cross-cut, north of the engine-shaft, by six men and three boys, to the 44 north through the lode, east of the cross-course, by six men, at 10^t per fathom; the lode is yielding stones of copper ore, and worth 10^t per fathom.

TYLLWYD.—Capt. Pauli, Feb. 17: The lode in the 30 fm. level, west of cross-cut, is 5 ft. wide, containing spar, clay slate intermixed with lead ore; about 2 ft. of same is good saving work for the dressing-floors. This end bids fair for further improvement as we proceed westward. I may here say that this is not the first time we have seen the level above, which is still 18 or 9 fathoms further west. Should the lode continue, and join the one going down in bottom of the 20, there will be a run of ore ground for 60 fathoms in length. We have passed through the slide water issuing from the present end after passing this cross-course, and the lode is appearing of the ground, combined with the issue of water, I hope we shall have an improvement in this place. There is no material alteration in the department; two of the men have left. The machinery is going well, and

VAN CONSOLS.—James Roach, Feb. 17: The lode in Murray's shaft is still good for lead, and both ends therefrom in a good lode for ore. Cutting down Murray's shaft is progressing favourably. We shall soon make greater progress.

WEST GODOLPHIN.—John Pope, Feb. 13: There is no change in the mine at present since my last report. We have a very hard floor of ground in the shaft, also in the rise in the adit level. Had it not been for that we should have held before this time.

WEST MILWR.—William Francis, Feb. 16: The east and west vein, I am glad to be able to report, keeps open in sinking, and when the true limestone measures met with I have great confidence we shall have a good run of ore, and I expect this will take place within 15 fms. of the present depth. The ground, in driving the cross-cut south, is more firm, with, however, good indications of cutting.

WEST TANKERVILLE.—A. Waters, Feb. 17: South boundary shaft is now 10 fms. below the 63; ground of the usual character. It must be understood that the lode is standing 9 to 12 ft. in the west side of the shaft, and will be cut into opening out for plat in the next level. The 63, south of shaft, is up to a twich, and the lode is for the time not to value. The stope in this level, south of shaft, is worth 1^t ton of lead ore per fathom. The winze from the 50 being

holed to the 63 a new stope is commenced in the north end of it, where the lode is worth 2 tons per fathom. The 50, south of shaft, in the direction of the shale, is worth 3 tons per fathom. No. 1 stope, in this level, south of shaft, is worth 2 tons per fathom. No. 2 stope, south of ditto, is worth 1^t ton per fathom. No. 3 stope south is worth 1^t ton per fathom. The stope in the 48 south is worth for the trials in the old mine since last week's report. I enclose certificates for the 20 tons of lead and 20 tons of blende sold last week, the two lots being delivered.

WEST WHEAL TOLGUS.—Feb. 17: Taylor's shaft has been sunk to the depth of 12 fms., 2 ft. below the 125. On Monday we shall commence to drive east and west, about 11^t fms. below the 125. The lode in the 125 end west is small and poor. The lode in the 115 end is 4 ft. wide, yielding 3 tons of ore per fm. The rise in back of the same level, a little behind the end, yields 3 tons of ore per fm. The lode in the 105 end is now 2 ft. wide, and still poor. The lode in the 95 end west is 3 ft. wide, harder than it has been, with a little ore—hardly 1 ton per fathom. The lode in the 85 west is improving, yielding 3 tons of ore per fm. Richard's shaft is without much alteration, getting on in sinking very well. The lode in the 75 end west is very wide, and yielding 3^t tons of ore per fathom. There has not been an lode taken down in the rise in the back of the 65 since setting-day; the men are rising on the back of it in kilas for the sake of dispatch, and also for saving the ore cleaner. We are pleased to say that both shafts have been kept sinking without hindrance. We sampled this week 228 tons of ore—the usual quantity, but the produce will scarcely be up to former samplings, nor shall we be able to keep it up until the 132 gets into the western shoot of ore, which we hope we shall soon reach.

WHEAL CREBOR.—J. Andrews, Feb. 15: The lode in the 120 east continues small and poor. In the 108 east we continue to carry about 2 ft. of the north part of the lode, which is composed of quartz, capel, and munde, and yields good stones of yellow copper ore. The lode in the 72 east is 3 ft. wide, composed chiefly of quartz, capel, and munde, with occasional stones of copper ore. In the 48 east we are driving by the side of lode. The lode in No. 1 stope, in back of 48, is worth 20^t per fathom. The lode in No. 2 stope, in back of the same level, is worth 30^t.

WHEAL GRENVILLE.—T. Hodge, Feb. 16: There is no change calling for remark in any of the underground bargains since last week's report. The tribute pitches are yielding tins for some time past.

WHEAL KITTY (St. Agnes).—Stephen Davey, Richard Harris, Feb. 12: The men in the various bargains throughout the mine have during the week been despatching the lode, which will be taken up in the course of next week, when full particulars shall be sent you.

WHEAL PRUSSIA.—W. Tregay, Feb. 16: The lode in the 40 east end still produces 1 ton of black tin per fathom. No other change.

WHEAL UNY.—Wm. Rich, Matthew Rogers, Wm. Rich, jun., Feb. 12: The 100 end, east of King's carries a little tin. The 110 east is worth 10^t per fathom. The 120 east is worth 12^t per fathom. The 140 east is worth 10^t per fathom. The 150, east of Goodinge's shaft, is without alteration to notice. The 150, west of Hind's engine-shaft, is rather easier.

WEST VAN.—DINNER TO WORKMEN.—On Monday the recent discovery of lead ore at this mine was celebrated by a dinner to the workmen given by the directors and shareholders. Capt. W. Williams occupied the chair, and Dr. Davies the vice-chair. The usual patriotic toasts having been drunk, "Success to the East Van Mine" was proposed by Mr. Roberts, who remarked that Providence had given them lead deposits which had, perhaps, lain for millions of years, and men who knew where it was to be found, with skill and intellect to work the mines in the most scientific and economical manner. For his own part he believed that the Van Mines would yield to no mines in the world in having the most perfect machinery with the most experienced men at its head. It was to Capt. Williams that this credit was due. He was capable, with his assistants, of managing large bodies of men; and last, but not least, he had men under him who were capable of being managed. There were some men who were not capable of being managed; but Welshmen—he (the speaker) and the majority present were Welshmen—were capable of being easily managed. In the discovery of the East Van they had promises of still greater things. He had been in Llandilo's 32 years, and during that time had seen great changes. He remembered a famine in the town and neighbourhood, when men were dying from want; but at the present time everyone was fit, could be successful—both miners, manufacturers, shopkeepers, and professional men—through the mines that had been discovered around them. The toast was acknowledged by the Chairman, and those of "Success to the Chairman and Directors of East Van Mine," and "The mining interest of the locality," were equally well received. In proposing one of the toasts, Mr. Ceriog Hughes remarked that the mines not only made the aristocracy richer, but the wealthy wealthier. Their lead ore had not only made a benefit to the workmen, but also to the owners of the soil, for the discovery of the mines. He believed there was enough ore round Llandilo's to make not only Montgomeryshire the richest mining county in North Wales, but the richest in Great Britain. Capt. Humphreys, in responding to a toast with which his name had been coupled, said that there never was a time when mining was carried on so vigorously and so successfully as at present. They as miners, were often blamed for attributing the prosperity of their different localities to mining; but they would all agree with him that it was to the vast masses of minerals under their soil, and mining, which was the cause of the great manufacturing power of the country. To mining must be attributed their importance as a nation, also their enormous wealth, which surpasses every other nation in the known world. The first light of civilisation that touched this country came by the invasion of the Romans, and one great authority says it was to acquire minerals, for it was found that the Romans had been busy working the lead mines, making public roads through the length and breadth of the country—so they found that it was to mining they owed their first glimpse of civilisation, and had made the British nation the wonder of the world. The vast colonies of this empire—for instance, Australia, owned its greatest prosperity and wonderful development to mining. The great misfortune to legitimate mining in their own district was the promises that were wrung from the agents of making returns too soon. The shareholders became impatient, hence the plundering of the mine in an expensive way, which ate up all profit; but no matter, a certain quantity of ore must be sent to market, cost what it might, which in the end disappointed all concerned. He believed the district was rich in minerals, the only thing wanted being a reasonable amount of capital, with skill in mining. The Van Mines had made the district famous in the annals of mining, and was a credit to the district and mining in general. Their rapid development, and the masterly manner of mining carried on, was the admiration of all practical miners. Again, the dressing floors were models, the late improvements making quite a revolution in dressing machinery. The mining world were greatly indebted to the gentlemen constituting the board of directors, for their foresight and great business tact, which they had shown in appreciating the genius of Capt. Williams and his son, who had brought everything connected with the mine to such perfection. Mr. D. Hickes, who spoke in Welsh, wished, as one of the workmen, to say that they had received every encouragement from the directors and their manager, and they were encouraged to go on through all discouragements until the recent discovery, which would add greatly to the prosperity of both directors and miners. They had every confidence in their directors and their captains, and they as workmen wished them every blessing. The proceedings then terminated.

ECHOES FROM THE MINING MARKET.

The anticipations we expressed in our last remarks as to the probable early recovery of prices in lead shares have been fully realised during the past week, many advances of importance having taken place. The shares of Plynlimon Mine in particular have risen from 10s. to 12s. 6d. to 14s. 6d. whilst North Laxey from about 30s. have gone to 35s. 37s. 6d. The full report issued from the office of the latter company is of a most satisfactory character, and has, doubtless, been read by the shareholders with the greatest interest. Capt. Rowe states most positively that he considers North Laxey is a continuation of the main or principal Great Laxey lead. A later telegram states that the lode has again been taken down in the shaft, maintains its size, and is improving for lead. Although Plynlimon shares have doubled their value since first we drew attention to their neglected merits, we do not think that their real value has yet been attained. The mine is but 30 fathoms deep, and has returned something like 35,000^t worth of lead. The improvements made within the last 18 months will enable the work of development to be proceeded with much quicker than before, whilst should the cross-cut, now being driven from the adit to intersect the lode found so good at the 12, under our previous favourable results the share would, in all probability, rise to 20^t. As it is, taking all the favourable chances into consideration, and seeing what has already been done, and what, with the improved mode of working, is likely to be attained within the next few months, we must pronounce Plynlimon one of the cheapest shares in the market. It must not be thought that, shallow as the mine, profits are merely in future, for the last yearly balance-sheet showed a profit of about 1200^t on the twelve months' working. The lead sales have been about 40 tons per month.

The advances we have alluded to in lead shares have not only been confined to the two mines we have named, although in most other cases the improvements are but slight. Roman Gravels, Tankerville, West Tankerville, Patelley Bridge, West Cliverton, East Van, and others, show marked firmness. From the last-named mine there is not much news to report. The latest intelligence is to the effect that the mine is looking very well and promising. The shares remain at about 21^t. The success that has attended the re-construction of the Rookhope Valley Company will doubtless draw a still further amount of attention to our lead mines, and now that there will be ample capital to thoroughly develop the property there is likely to be a considerable demand for the shares. To the original allottees there is already about 100 per cent. profit on the value of their shares, for each successful applicant is to receive for every 30s. share he applies for, another one of like amount by way of bonus, and as the shares bonus and ordinary, although there is to be no distinction we believe in the books of the company—are worth about par on the market, fortunate holders are in a very good position without taking into calculation the profits likely to be received from the mine. The shares of the old company were once 7s. or 8s. each. We believe that another lead company in the same office, which is now making profits, but for which further capital is required to sink the shaft deeper and open the ground quicker, is about to be re-constructed on a similar plan as Rookhope, so those who apply earliest (when they have the chance) for shares are likely to fare the best. At present we are not in a position to say more than this.

In Copper Mines a good business has been done in Parys Mountain Shares. We should like soon to hear some favourable intelligence as to the cross-cut, which, contrary to general expectation, has not intersected the Mona lode. We need not remind our readers that often delays, which are very vexatious no doubt, occur in the fulfilment of mining prognostications, and that often when prospects seem darkest a "discovery" is close at hand.

The shares of the Belstone Mine, a copper property situated near Okehampton, Devon, have been in demand lately upon favourable reports both as to the general state of the mine and the good prospects of cutting the lode in the cross-cut from the 80 in a few fathoms more driving. This lode has already been intersected by cross-cuts from the 80 and 50 fm. levels, when rich courses of ore were found.

It was then decided to sink to the 80, and to cross-cut to the lode from that point, thus proving the mine 30 fathoms deeper. To the accomplishment of this the company has devoted itself for a long time past; the 80 has been reached, and, as we have stated, the cross-cut is now being made to the lode, which is dipping to the shaft, and, therefore, will be cut much sooner at the 80 than at levels above. About 700^t. worth of copper ore has already been sold, and it is confidently believed by those whose opinions are entitled to weight that large deposits of yellow copper ore will be found at the present depth. Above the ore was met with mostly in black bunches, but as depth has been reached these have changed to the more favourable colour. The shares are 2^t to 3. Capt. Joseph Richards, in writing of the main lode to the executive some time since, said, "There is every evidence of your being able to open up as good a mine as any in the two counties, not excepting the Devon Great Consols."

In Cornish mine shares little has been done. Dolcoath has given a dividend of 10s. per share. The profit on the quarter's working has been 2120^t. Botallack, on the other hand, has made a loss of 582^t. on three months' working, which added to a previous debit balance of 613^t, makes a present debit of 119^t, which has been carried forward. South Crofty has given a dividend of 2s. 6d. per share, having made 1135^t. on four months' working; credit balance 2488^t. At the meeting of South Frances it was resolved to increase the shares from 450 to 450^t; 55 (450ths) were forfeited. It was said that the other forfeited shares, which for some time past have been in abeyance, have been

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Dynamite, and the Railway Companies; the Ventilation of Coal Mines (C. Colwell); Explosives, and Merchandise: Rosway's Process for Treating Metallic Substances: Cape Copper Mining Company: Canadian Minerals—Plumbago; Swedish Iron Ore: Mining in Queensland; Improvement in Taxation (A. Crestadore); Lead Mining (Robert Knapp); "Circular Mining"—Wolves in Sheep's Clothing: Wheal Grenville (T. B. Laws); Parys Mountain; Old Treburret; New Consols; Pennerley Mine; Duchy Great Consols; East Brookwood Copper Mine, Buckfastleigh (George Sparke).—The World's Richest Mine: Rich Gold Mine: Mining in Australia—Monthly Summary—Australian Mines—Patent Matters: Meetings of the English and Australian Copper, Kirk Michael, South Condurrow, Botallack, and Dolcoath Companies, &c.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, FEB. 18, 1876

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, smt., f.o.b., Clyde.	3 0 9	—	English, ingot, f.o.b.	81 0 0	—
Scot., all No. 1.	3 2 6	3 15 0	" bars	82 0 0	—
Bars, Welsh, f.o.b. Wales	6 7 6	6 10 0	" refined	84 0 0	—
" in London	7 2 6	7 5 0	Australian	76 0 0	—
" Stafford.	8 15 0	10 5 0	Barca	86 0 0	—
" in Tyne or Tees	7 0 0	—	Straits	77 0 0	—
" Swedish, London	15 10 0	—	QUICKSILVER.		
Bars, Welsh, at works	5 15 0	6 0 0	Flasks of 75 lbs., ware.	10 10 0	—
Railway chairs	—	—	COPPER.		
" spikes	—	—	Tough cake and ingot.	84 0 0	86 0 0
Sheets, Staff., in London	0 0 12	10 0	Beat selected	86 0 0	87 0 0
Plates, Staff., in London	15 0 12	10 0	Sheets and sheathing	91 0 0	—
Hoops, Staff.	9 15 0	10 5 0	Fiat Bottoms	94 0 0	—
Nail rods, Staff., in Lon.	8 5 0	9 0 0	Waller	88 0 0	—
STEELE.			Burra, or P.C.C.	88 0 0	—
English, spring	16 0 0 25	0 0	Other brands	86 0 0	87 0 0
" cast	35 0 0 50	0 0	Chili bars, g.o.b.	79 0 0	79 0 0
Swedish, keg.	18 10 0	—	gag. ham.	21 0 0	—
LEAD.			BRASS.		
English, pig, common	22 0 0	—	Wire	94 0 0	—
" L.B.	22 5 0	22 10 0	Tubes	9 12d.	—
" W.B.	24 0 0	—	Sheets	9 10	—
" sheet and bar	23 5 0	23 10 0	Yellow metal sheathing	7 1/2	8
" pipe	24 10 0	—	Nail composition	7 1/2	10 1/2
" red	24 0 0 25	0 0	TIN-PLATES.	per box.	
" white	28 0 0 29	10 0	Charcoal, 1st quality	1 9 0	1 10 0
" patent shot	28 15 0	—	" 2nd quality	1 8 6	1 7 6
Spanish	21 10 0 21 15 0	—	Coke, 1st quality	1 3 0	1 4 0
SPELTER.			" 2nd quality	1 0 1	1 2 0
Silesian or Rhenish	1 25 0 0 25 10 0	—	Black	17 0	17 10 0
" in English port	1 25 0 0 25 10 0	—	Canada, Staff., or Gla.	15 0 0 15 10 0	—
English, Swansea	26 0 0	—	Black Taggers, 450 of	30 0 0	—
Sheet zinc	31 0 0 32 0 0	—	14 x 10	—	—

* At the works, 1s. to 1s. 6d. per box less for freight; 10s. per ton less for Canada; 1s. 6s. per box more than IC quoted above, and add 6s. for each X. Tin-plates 2s. per box below tin-plates of similar brands.

REMARKS.—The week has passed without effecting any noticeable change in the condition of metals. Buyers and sellers alike stand aloof from important commitments. The former because there is too much uncertainty regarding the future to tempt them to buy for stock, for shipments, or for speculative purposes, and the latter because at current quotations, taking metals all round, there is no inducement to press sales. With wages and the cost of raw material as they now are, it is not likely that prices to be remunerative can fall much below present quotations. Manufacturers have reduced their make so far as they can, just to meet the very limited current demand, and before a brighter condition of affairs can be expected, either a brisk demand at existing rates must spring up, the indications of which are not very apparent at present, or a lower rate of wages must rule, so as to materially reduce cost price, and thus enable our manufacturers to compete successfully against foreign markets. Bank rate stands at 4 per cent.

COPPER.—This metal has been very quiet throughout the week, and prices have tended downwards, but without resulting in any very material depreciation, Chili bars being quoted about 79. 10s. 79. 5s. On Thursday the Chili charters for the first fortnight in February were announced to be 1900 tons, composed of 950 tons bars and 350 tons ore and regulus for England, and 600 tons bars for France. A moderate business in bars resulted at fractionally lower prices, f.o.b., changing hands at about 79.; Wallaroo and Burra quoted 88. To-day the market is very quiet indeed, and lower prices will have to be accepted in order to bring about business.

IRON.—The report from South Wales this week presents no immediate encouragement. Orders do not come forward from the various quarters, both at home and abroad, from which such are usually expected, and by which in ordinary times the market is supported. Contracts already booked for the colonies afford partial employment to the Welsh district, and it is hoped that these, and what other orders may be obtained until the opening of the northern ports at the spring advances may suffice to maintain the works in such employment as now exists. So soon as those ports are open for navigation, expectations are held out that orders for rails may be looked for, but it is by no means certain that these expectations will be realised. As regards the position of some of the works, the establishments have already been organised upon a reduced scale, while in others reductions are contemplated as an imperative necessity, and the real condition of trade is now so apparent that the men, instead of standing out for what they deem their rights in the exacting of a full rate of wage, are in many instances prepared to carry on work at the sacrifice of those rights, rather than receive notice of dismissal. Upon these grounds reductions have been accepted up to 12 per cent. The rail department is very especially dull, and at Tredegar those employed in the rail mills have received the required one month's notice prior to cessation from work, and by the end of this month the probability is that a large number of hands may be thrown out of employ.

One centre of the iron industry cannot but sympathise with another. The report from the North of England in no way differs from that received from Wales. Great quietness is the characteristic of the trade. The value of pig-iron continues unchanged so far as quotations from first hand are concerned; but as second-hand parcels are disposed of under current published rates, and there is no prospect of improvement, it seems more likely that producers will be compelled to lower their quotations, albeit there is a marked indisposition to do so. The home trade in pigs, as well as shipments coastwise on Scotch account, are slightly larger than during the previous week, but those to other quarters have fallen off. The rail trade is especially quiet, and any anticipated improvement has not been realised. It is reported that only about one-half of the two thousand puddling-furnaces in this district are at work. The only department of the trade which continues to show signs of healthy activity is plates for ship-building purposes. The demand is maintained, and prices are strongly held upon a scale of 8/-, and rails 8/- 15s. From advices lately received from America we learn that ready made English rails, lying in New Orleans, are offering, duty paid (which amounts to 3/- per ton), at \$3 currency, or about 6/- 4s. per ton. This is not encouraging, so far as our rail trade with America is concerned, for upon the supposition that the cost price in England is 6/- to 6/- 6s., and freight and insurance to America, together with duty, amounts to probably between 5/- and 6/- per ton, the result is that rails are at the moment a drug in the American market.

No real improvement can be expected in the iron trade of this country until the masters and men have arrived at such a mutual understanding as shall prove sufficiently solid to withstand the efforts of the disaffected, and no temporising measures will ever effect this. The root of the evil must be dealt with at all costs. Much, very much, valuable time has already been lost in vain endeavours to come to an agreement; but all placid suggestions, and attempts have signally failed in restoring the trade to a condition of ordinary prosperity, and if masters are permitted to proceed as they have been, the trade will become yet more depressed, and the effort to restore it will be proportionately greater. Let the consequences be what they may, it would be far wiser to have recourse to decided measures than to go on indefinitely drifting towards a condition of utter prostration. The Scotch pig-iron market is quiet, and has been so throughout the week. The opening price on Monday for warrants was 60s. 10/-d., about which price pigs have remained till Wednesday, when they showed a tendency to decline, and business has been reported down to 60s. 6d. To-day the market is steady, at 60s. 7 1/2d. to 60s. 9d. cash, and 60s. 10/-d. one month.

SHIPMENTS.

Week ending Feb. 12, 1876. Tons 7,994

Week ending Feb. 13, 1875. 7,792

Increases 202

Total decrease for 1875 11,772

SPELTER.—Common Silesian has changed hands at 25. 5s. in warehouses in London, and special brands at outports have realised 25. 15s.

ZINC.—A parcel of 75 tons London rolled was sold at 29/-, and 5 tons 2s. 6d. higher.

LEAD.—The market is inanimate. Good soft English pig is quoted 22/- to 22. 5s., and soft Spanish, without silver, 21. 12s. 6d. to 21. 15s.

QUICKSILVER.—The market being dull at 11/-, sellers have reduced the official quotation to 10/- 10s., which is now the price.

TIN.—The market has been sluggish throughout the week, and prices have tended downwards in regard to every description of tin. Legitimate demand does not suffice to sustain the market, and there is no speculative movement to affect prices. There are sellers of Straits at 77/-, and of Australian 20s. under. Business is reported this evening in Australian at 78/-, and Straits is quoted 77/- The immediate cause for the present depression is to be attributed to the arrivals from Australia, which have been large, and the desire of holders to quit themselves of some of their stock.

THE IRON TRADE (Griffiths's Weekly Report).—Friday Evening. We report a reduction in the price of g.m.b. pig-iron at Glasgow this week of 7 1/2d. per ton. This day week the price was 61s. 3d. This afternoon the Glasgow market was idle, and closed rather sellers at 61s. 7 1/2d. We quote makers No. 1 iron: Garthdee, 72s.; Coltness, 74s.; Calder, 75s.; Langloan, 72s.; Summerlee, 70s.; Monkland, 62s., f.o.b. Glasgow; Gartmornock, 68s.; Eglington, 61s. 6d. f.o.b. Ardrosson; Shotts, 72s., f.o.b. Leith; Kinnis, 65s., f.o.b. Bo'ness. We have very little

change to notice in the London iron market this week. The kinds of iron most in demand are the best bars of bars. In common iron the Belgians are doing a large business—in construction iron of all sorts, so indispensable now in the erection of buildings here. The demand for sheet-iron is less brisk. The general market continues quiet and steady, and the makers on the Tees are obtaining higher prices for ship-plates, which is a good indication for the Cleveland district. The Barrow Shipbuilding Company received an order last week for two large iron bar steamers, which will carry enormous guns. These warships will consume a great quantity of plates and angles, and give an impetus to the trade at Barrow-in-Furness. We hear the workers in the steel rolling-mills are about to consent to the reduction in wages proposed by the manager. A large meeting of the Ironmasters' Association was held at Birmingham yesterday, to follow up the former propositions for a Board of Conciliation, and passed a resolution which, it is believed, will meet the requirements of the Black Country. We have authentic advices from Germany, which represent the iron trade there to be in a deplorable condition. The tin-plate makers have given notice in Wales for a reduction in wages to all the workers in black-plate, from the raw material to the finish.

The Glasgow market continues weak, and prices a shade easier. The same remark applies to the Middlesbrough market on Tuesday last. On the other hand, the raw material on the Barrow Exchange on Monday, and at Birmingham on Thursday, was firm. Engineering shops brisk; heavy foundries not so active. Rail trade much depressed—no orders. Steel rails better, no orders given out but future prospects much brighter. The present undriven and apparently weak state of the iron markets will not surprise old ironmasters who have been in the trade during their lifetime. The great reduction of prices during the last two years must of necessity cause perturbation, disappointment, and loss to the makers. Standard bars are reduced from 16/- to 10/- per ton, and other sorts in the same proportion. This great depreciation has created changes in the prospects of all new works abroad, and will in the end curtail production.

We are pleased to observe brighter prospects in America. It appears very plainly now that the very large amount of Railway Bonds which were turned out of the "Exchange, in Wall-street," during the panic on suspicion of unsoundness, having passed through a long probation, are now coming into favour. The dividends on these stocks having been paid, the consequence is that railway credit and general credit in the United States is improving, and all railway stocks are gradually rising in the market. This looks well, and clearly indicates a gradual but certain improvement in the credit of the trading community on the other side of the Atlantic.

COPPER.—(Harrington, Horan, and Co., Liverpool).—Arrivals here during the fortnight of West Coast, S.A., produce: Valparaiso, from Valparaiso, 490 tons bars. At Swansea: Rose of England, from Carrizal, 600 tons regulus; Silurian, from Carrizal, 725 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

Ores. Regulus. Bars. Ingots. Barilla.

Liverpool 874 508 —

Swansea 3829 783 —

Total 3229 954 508 —

Representing about 11,775 tons fine copper, against 12,582 tons Jan. 31; 12,247 tons Feb. 15, 1875; 21,900 tons Feb. 15, 1874; 24,900 tons Feb. 15, 1873. Stock of Chili copper in Havre, 1050 tons fine. Stock of Chili copper afloat and chartered for to date, 13,937 tons fine. Stock of foreign copper in London, chiefly Australian, 5241 tons fine. According to the Board of Trade returns the total imports and exports into and from this country for the first month of the following year, were—

IMPORTS.

Copper in ores. Tons 414 380 983

Ditto, regulus. 1270 2139 1583

Bars, cake, and ingots. 3085 4068 2121

In pyrites, estimated. 944 1110 1406

Total imports 5743 7897 6093

EXPORTS.

English copper—wrought and unwrought. 1549 1993 1518

Foreign copper—unwrought. 1111 1208 1515

Yellow metal. 782 775 989

Total exports 3442 3976 4022

Messrs. Henry Rogers, Sons, and Co.—COPPER.—The West Coast charters for the first fortnight of the current month were cabled on Feb. 17 as 1900 tons fine copper, 1300 tons only being for England; the market for copper had been drooping for some days previously, and bars looked like going to 72. For the moment any further fall seems to be arrested, but the trade is so completely confined to daily wants that no permanency in prices can be hoped for. The continued downward course of the Indian Exchange very materially affects the Eastern demand for manufactured as well as yellow metal, and these are both cheaper in consequence. English copper is neglected, and fine sorts of Australian and buyers only in limited quantities and at continually lower prices. TIN: The fluctuations in this metal have been but slight to within the past day or two, when heavy arrivals began to tell upon an already overstocked market, and we have now a drop of fully 30s., with but a poor demand at the present time. SPELTER: Prices on the Continent are maintained, and sales some way forward have made as high as 26/-.

English copper is offered at 17/- per ton, and on our ports and outports for quite ordinary brands. There have been some considerable undersellings on the part of some of the English smelters whose makes are not in such good repute as formerly, but there is but little stuff offering at the moment, at the same time the demand is more quiet than usual at this season. LEAD: The market is quiet, the low exchange ruling in China has stopped the demand thither, and the spring orders for the North of Europe are not yet offering. Consumers, however, both here and on the Continent, are without stocks, and a very slight further reduction a good trade could be done.

Messrs. Vivian, Younger, and Bond—COPPER.—The market has been dull and drooping. Chili bars have given way about 10s., with sales down to 79. 10s. for good ordinary brands, and specials at 80/-, closing flat, with sellers at 79. quotations. Fine foreign is neglected, at 88/- to 88. 6s. for Burra and Wallaroo. English is difficult of sale in all descriptions; manufactured has sold down to 92/- per unit less. The charters for the first half of this month were advised by cable this morning from Valparaiso as 1900 tons fine—

TIN: After the close of our last report the market became flatter, with prices of 10s. easier. This concession brought no orders, and a fair quantity was disposed of, chiefly Australian landing, at from 77s. to 77s. 6d.—5s., and even 10s. per ton more being made for several 5-ton warrants for delivery at once, in execution of consumers' orders. Straits being less freely offered, sold at 78s. to 78s. 6d., one transaction of 30 tons being reported as 79s., it is said to close a "bear" sale, for sellers remained over at 78s. 6d. for moderate quantities on the same day. A fair quantity of English common ingot sold at 91s. The market closes heavy and uncertain, in the face of heavy arrivals of Australian. At the Billiton sale, in Batavia, held on the 14th inst., 10,000 pieces sold at 53 guilders per picul, equal to about 81s. 6d. per cwt. laid down.

Mr. Murrant—TIN.—The heavy arrivals of foreign in this port has produced a relaxed feeling; a further drop has occurred, and the tendency would still appear to be downwards. The report of the committee for the week comprises about 15 tons of Straits and Australian, at 77s. to 79s. for cash and shipment. COPPER: Chili has again receded: the charters are advised as 1900 tons for the first half of February. No speculation is going on, the look-out being about as dull as could well be imagined. A small business only is announced by the committee at 79s. to 79s. 10s. for g.o.b.

Messrs. Sanford and Bird—COPPER.—COPPER has declined about 20s. per ton

be received. Melindur Valley, 2 to 3; the bottom level is yielding capital lead ore, and the level above is also improved. Great West Van, 15s. to 20s.; the lode in the 46 west presents a favourable appearance for a good lode of lead; the recent discovery of a lode in the eastern ground will, now the snow has disappeared, be opened on. Glyn, 2*1*/₂; the Van lode, which traverses this sett, is now being opened on; the presence of gas in this mine is looked upon as a favourable indication, it having been met with in the Van mine before cutting the rich deposits of lead found there. West Boginan, 2 to 2*1*/₂; the shaft is making good progress, and the stopes have grown richer.

Great Laxey shares have advanced 1*1*/₂ per share, to 18, 19, and in good demand; mine improving. North Laxey shares have been in good demand all the week, at 1*1*/₂ to 2*1*/₂; the lode in the shaft sinking below the 12*1*/₂ has opened out to 4 ft. wide, and a rich lode is expected. A highly favourable report from the manager has just been issued to the shareholders. South Cwmystwith, 2 to 2*1*/₂; the late discoveries hold good, and improve.

Richmond Consolidated shares have declined to 5*1*/₂, 6*1*/₂; cablegram received:—Week's run, \$30,000—2*1*/₂ furnaces. The make of bullion for the season is \$1,630,000, and since February \$2,203,000. The refinery this season has produced gold and silver, value \$1,054,000, irrespective of the lead. No. 2 furnace, which has been running a long time, has required so much repair as to amount nearly to a rebuilding, and has thus been thrown out of work much longer than the usual period required for relining. On the completion of the No. 2 furnace, No. 3, which has been running since Nov. 30, is to be relined. The returns this week are at the rate of \$13,000 per furnace, and are thus still short of the average of \$15,000 per furnace which was obtained during the year ending February, 1875. It is understood that Prof. Price was at Eureka on Jan. 17, but it has not transpired whether he had made any fresh estimate of the existing reserves, or ascertained the cause of the apparent errors in his former estimate. No report from the manager has arrived this week; the cause of delay is not known, but the very heavy storms reported may have interrupted postal communication. We observe that the board have sent out notices to shareholders of the intention to issue 50,000*s.* in debentures of 100*s.* each, bearing interest at the rate of 10 per cent. per annum. This step is in accordance with the views expressed by the shareholders at the last meeting. The object of the fund about to be raised is, to make the company practically independent of any bullion agent or banker, by rendering it unnecessary to obtain advances other than on bullion forwarded for sale. The sum now to be raised is about a seventh of the present market price of the property, and is to be applied in reduction of existing advances on bullion and ore, or revenue assets in stock at the works.

Flagstaff shares have risen to 1*1*/₂ to 2*1*/₂; it seems the miners have broken into the South Star and Titus claim; this is important, as establishing an unbroken connection between the Emma and the Flagstaff, whose discoveries are several thousand feet apart. It is possible now to follow the great ore-producing limestone belt from the one mine to the other without leaving a mineral channel, and thus is set at rest the vexed question so often warmly discussed in these columns. The tramway running from the main incline to the ore-house at the base of the hill is now entirely covered, and the mine throughout the winter is to be worked to its full capacity. Emma, 2*1*/₂ to 2*1*/₂; further confirmatory information has been received that the Bay City Tunnel, under Emma Hill, has struck the Emma vein, and found some \$2000 ore. Exchequer, 1*1*/₂ to 2*1*/₂; the manager has cabled that ruby silver has been struck 4 ft. wide in the 300 ft. level. The letter of Jan. 24 stated that he had run the drift 25 ft. in the 300, and had struck 2*1*/₂ ft. of ruby silver, averaging in gold and silver over \$300 per ton. Three weeks further working in the drift would bring the level 61 ft. in ore, and it is expected the vein has widened out and become richer. I. X. L., 2*1*/₂ to 2*1*/₂; it is understood that active operations will shortly be commenced, and surprise is expressed that the news from the Exchequer Mine has not caused greater activity in the shares. Those well acquainted with the property believe it to be richer than the Exchequer.

Replying to various communications as to the average yield of the galena ores of Utah and the cost of smelting, it may be mentioned that the last three months' run at the principal smelting establishments was upon ore of about 30 per cent. of lead and 40 ozs. of silver per ton, carrying enough iron for fluxing purposes, and a small quantity of gold; the value of the bullion produced in the three months was \$109,961, and the cash paid for ore (1572 tons) \$70,452; the fuel charges were \$15,344, and labour and incidental expenses \$16,963, amounting together to \$102,761; this left a profit on the 71 days' run of \$7200 (or \$4 58 per ton).

In Foreign Quartz Mines the chief feature has been rather heavy fluctuations in St. John del Rey stock, closing 37*1*/₂ to 38*1*/₂; the produce for January was 52,500 oits.; yield, 8*1*/₂ oits. per ton. Argentine, 7*1*/₂ to 8*1*/₂; a cablegram has been received from the Commissioner, announcing his return from Chili; he states the works are progressing satisfactorily. Frontino and Bolivia, 2 to 2*1*/₂; Chontales, 2 to 2*1*/₂; Javali, 3 to 4*1*/₂; Sierra Buttes, 1*1*/₂ to 2*1*/₂; the receipts during January were \$33,938, and expenses \$22,279; the Plumas Eureka receipts were \$34,767, and expenses \$17,778; 56 tons of sulphurets were saved and amalgamated, the produce of which has not been included in the receipts, the bullion not having been received at the date of the telegram; the agents state they expect an additional \$4000 from this source. London and California, 4 to 5*1*/₂; the cleanup for January at the Original Amador is \$14,000; details as to expenses not yet received.

The market for Hydraulic Gold Mine shares on the Stock Exchange has been moderately active during the week, and prices exhibit but little alteration. Very heavy snow is reported from all parts, so that washing will be continuous for some months to come. Blue Tent, 4 to 4*1*/₂; the news from Prof. Price continues satisfactory, and particulars of the clean-up to the end of January are expected in due course. The ditch is bringing down a steady supply of water. Shares have been enquired for, and close steady. Oregon (pref.), 4 to 4*1*/₂; the information contained in the letter published last week has been further confirmed by a telegram received this week, in which it is announced that the Quartz Ditch and extension was finished, except the fluming; that the damage to the main ditch during the late storm was nearly put right. Thirty boxes had been fixed at the Thoss claim, which was fitted complete, and washing in successful progress, the preliminary clean-up having proved highly satisfactory. The pipe for the Reed claim was being fitted, and washing could commence there in about a month. Cedar Creek, 2*1*/₂ to 3*1*/₂; the Yankee tunnel is in full progress, and is now past the Badger shaft. Driving will be continuously carried on. The claims mentioned last are still washing. Shares quiet. Sweetland Creek, 2*1*/₂ to 2*1*/₂; no further news has been received from the superintendent. The shares are a shade weaker, but very few are in the market. Birdseye Creek, 2*1*/₂ to 2*1*/₂; the superintendent's weekly report appears in another column. It would seem that the washing was somewhat hindered during last run by the heavy snowstorms and the severe cold. Shares are steady at quotations.

Cathedral, 25*s.* to 30*s.*; the lode in the engine-shaft continues to improve, as depth is being attained everything appears in favour of a rich course of copper ore.

Subjoined are the closing quotations—

Ashton, 1 <i>1</i> / ₂ to 1 <i>1</i> / ₂ ; Cara Bre, 37 to 39; Devon Great Consols, 4 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Dolcoath, 37 <i>1</i> / ₂ to 40; East Caradon, 3 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; East Van, 21 <i>1</i> / ₂ to 22; Great Laxey, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; Great Wheal Vor, 1 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; Hington Down, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; Marke Valley, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; Pateley Bridge, 6 to 6 <i>1</i> / ₂ ; Parry Mountain, 19 <i>s.</i> to 20 <i>s.</i> ; Pennerley, 10 <i>s.</i> to 11 <i>s.</i> ; Port Nigel, 1 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; Penstruthal, 9 <i>s.</i> to 11 <i>s.</i> ; Rookhope Valley, 1 <i>1</i> / ₂ to 1 <i>1</i> / ₂ ; Van, 39 <i>s.</i> to 40 <i>s.</i> ; 4 <i>1</i> / ₂ to 5 <i>1</i> / ₂ ; 4 <i>1</i> / ₂ to 5 <i>1</i> / ₂ ; West Ashton, 1 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; West Basset, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; West Chiverton, 17 to 18 <i>s.</i> ; West Pateley Bridge, 5 <i>s.</i> to 5 <i>1</i> / ₂ ; West Tankerville, 2 to 2 <i>1</i> / ₂ ; Wheat Greenville, 3 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; Almada and Trito, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Argentia, 7 <i>1</i> / ₂ to 8 <i>1</i> / ₂ ; Birdseye Creek, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; Chontales, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Colorado Terrible, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Condes de Chili, 6 <i>s.</i> to 7 <i>s.</i> ; Don Pedro, 2 <i>1</i> / ₂ to 5 <i>1</i> / ₂ ; Eberhardt and Son, 1 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; Frontino and Bolivia, 2 <i>1</i> / ₂ to 3 <i>1</i> / ₂ ; I. X. L., 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Javali, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Last St. John del Rey, 37 <i>s.</i> to 38 <i>s.</i> ; San Pedro, 4 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; South Aurora, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Sweetland Creek, 2 <i>1</i> / ₂ to 2 <i>1</i> / ₂ ; Teoma, 1 <i>1</i> / ₂ to 1 <i>1</i> / ₂ ; United Mexican, 3 to 3 <i>1</i> / ₂ ; Oregon Pref., 4 to 4 <i>1</i> / ₂ ; New Zealand Kapanga, 3 <i>1</i> / ₂ to 4 <i>1</i> / ₂ ; Sierra Buttes, 1 <i>1</i> / ₂ to 2 <i>1</i> / ₂ .

At the Truro Ticketing, on Thursday, 2279 tons of copper ore were sold, realising 10,821*s.* 1*1*/₂ Od. The particulars of the sale were—

Average standard, 11*1*/₂ i. 5*s.*; average produce, 6*1*/₂; average price per ton, 4*1*/₂ i. 5*s.*; quantity of fine copper, 149 tons 11 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Jan. 20.	3543	£113 7 0	£34 18 6	14 <i>s.</i> 7 <i>d.</i>	£72 16 0	
Feb. 3.	1433	111 14 0	7 <i>1</i> / ₂	5 3 6	14 6 <i>1</i> / ₂	72 15 0
—	2279	114 5 0	6 <i>1</i> / ₂	4 15 0	14 5 <i>1</i> / ₂	72 6 0

Compared with the last sale, the decline has been in the standard 1*1*/₂, and in the price per ton of ore about 1*s.* 4*d.*

The LINARES ZINC MINING COMPANY, with a capital of 30,000*s.*, in shares of 3*l.* each, half to be now issued to purchase and work some calamine mines near Linares, in Spain, about 330 acres in extent. Mr. de Garay, who is described as an engineer of experience, recommended by the manager of the Tharsis Company, reports "that the deposits and outcrops appear most notable of great hopes, worthy of having in them great and important works of exploration, whose cost it is difficult to foresee at present, but he thinks about 600*s.* used in works of reconnaissance must easily be remunerative." The purchase price is not stated in the prospectus. The lead ore assays 50 to 60 per cent., the zinc ore from 10 to 46 per cent. Mr. de Garay lost the sample from the principal working in the Suerte Mine, but says the mine is one of the best. The prospectus will be found in another column.

WEST PATELEY BRIDGE.—The report upon these mines, to work which company has recently been formed with a capital of 20,000*s.*, in shares of 5*l.* each, is a very favourable one. Capts. D. and C. Williams, who have inspected the property, state that at the joint adit level several of the productive lodes from Pateley Bridge pass into the property, all of which have proved enormously rich in those mines to a depth of 20 fms. below the joint level, and are being worked very extensively in the latter mines, showing courses of ore from 15 to 18 in. thick of pure metal, worth at least 50*s.* per fathom; indeed, the ore is found in almost a pure state, and requires little or no dressing, and as the West Pateley Bridge Mines are in the same limestone formation, and contain the same lodes as the Pateley Bridge Mines, they may reasonably expect the same results. In fact the surface workings on the Rake and Craven Cross veins prove, without a doubt, that they possess a most valuable property, and only require a small outlay to bring it into a permanent and profitable state. The captains remark that certain work should be at once proceeded with, and in conclusion remark that the shaft now in course of sinking upon Golden Fleece lode is down between 5 and 6 fms. The lode in the bottom is 2 ft. wide, composed of lime spar, gossan, and lead ore of fine quality, and the appearance of the vein is everything that can be desired.

WEST TANKERVILLE.—The 50 south has improved to 45*s.* per fathom, and a new stope is set in the stope below the 50, worth 30*s.* The other stopes are still yielding well.

SUNNYSIDE MINES (Durham).—Mr. George Henwood, the celebrated mining engineer, who has returned during the week from journeys of inspection in Italy, Greece, &c., has been retained to visit the above mines and give a special report. We hope to publish it in the Journal at an early date.

MARKE VALLEY.—It will be seen by the setting report that the prospects of this mine are rapidly improving, and the new discovery at the 30 east is still worth 8 tons per fathom. The winze in the bottom of the 20 is worth 11 tons. The 136 west is much improved. The stopes in the bottom of the 100 are still worth 8 tons per fm. At all points the mine seems prosperous. The sale of ore on Thursday, over 401 tons, will, it is expected, leave a profit on the month of at least 600*s.*

ISLE OF MAN MINING COMPANY.—The directors paid a dividend of 10*s.* per share on Nov. 22, and at their bi-monthly meeting, on Friday last, they declared another of a similar amount. The mines are looking remarkably well, especially Old Foxdale, in which the three lower levels on the north vein have been found for some time past highly productive of lead ore, assaying upwards of 100 ozs. of silver to the ton.

SANTA BARBARA (Gold).—Advices just received from Neva brings the mine accounts down to the end of the year 1875. The profit up to that time was 3222*s.* 6*d.* or sufficient to pay a dividend of about 30 per cent. per annum on the paid-up capital. The shaft has been sunk 1 fathom, and the lode retains its favourable appearance; this is an important point, as depth is attained we may expect the lode to improve in size and richness, like the St. John del Rey lode, as the lodes in both these mines are similar. The mine is opening out well, and will give good returns of gold during the next half-year. We shall soon see the Santa Barbara Gold Company in the Dividend List.

BRITISH LEAD MINES.—The City Article of the *Times* of the 17th inst. contained the following notice:—

"Mr. J. H. Murdoch has published a pamphlet on "British Lead Mines," which contains a good deal of information that may prove useful at present. Since the beginning of this year a good deal of speculation has sprung up in the mining share market, and, chiefly through the excitement caused by a reported valuable discovery in East Van Lead Mine, it is to lead mines that people have mostly turned. East Van Mine shares were to be bought at about 1*1*/₂ a year ago, and early in January last could be had for 3*1*/₂ or so. They are now 2*1*/₂, although the supposed riches of the property are as yet quite unrealised, and a rise so great and sudden has acted like a powerful stimulant on all kindred properties, almost whether they justify hopes or not. Mr. Murdoch's theory is briefly that on the average British lead mines have less of the lottery element in them than any others, and the figures he gives seem to support that view; at all events, those interested in this industry will find his facts and observations worth reading."

THE WEST PATELEY BRIDGE LEAD MINES (LIMITED).

Capital £20,000, in 4000 Shares of £5 each, 1000 of which are held in reserve.

DIRECTORS.

GEORGE BRIDGER, Esq., 33, East Park Terrace, Southampton. Capt. E. C. S. HELY, 47, Eardley Crescent, South Kensington. ABNER TORKINGTON, Esq., 9, New Bridge-street, Blackfriars.

BANKERS.

THE CONSOLIDATED BANK (LIMITED), Threadneedle-street, E.C. SECRETARY—W. J. LAVINGTON, Esq.

OFFICES—14A, AUSTINFRARY, LONDON, E.C.

The following is the joint report of Capt. DAVID WILLIAMS, Manager of the Murryfield Mine, and Capt. CHARLES WILLIAMS, of the Pateley Bridge Lead Mines and Smelting Company:—

WEST PATELEY BRIDGE LEAD MINES.

Pateley Bridge, Yorkshire, 10th February, 1876.—We have jointly visited these mines to day, and have thoroughly inspected both the underground and surface workings, beginning in the joint adit level, where several of the productive lodes are passing from the Pateley Bridge Mines into this property, viz.:—Jarnot, Sun, Fly, Head, Halden, Craven Cross, Rake, Lamb, Clearer, and Pringap, all of which have proved enormously rich in the Pateley Bridge Mines, to a depth of 20 fms. below the joint level, and are now being worked very extensively in the latter mines, showing courses of ore from 15 in. to 18 in. thick of pure metal, worth at least 50*s.* per fathom; indeed, the ore is found in almost a pure state, and requires little or no dressing, and as your mines are in the same limestone formation, and contain the same lodes as the Pateley Bridge Mines, you may reasonably expect the same results.

The great advantage is that the joint adit level has already been driven parallel with the boundary of your ground for a considerable distance, at a depth of 50 fms. below surface, and from which point all the lodes can be intersected by cross cuttings. We add the following work to be at once proceeded with:—

1.—To drive the Craven Cross lode, by six men, in the eastern part of the mine (at a point marked D on the plan), which in itself is to be a productive one; it forms a series of intersections and junctions with other rich lodes, thereby being a most important work, and as soon as the upper workings are drained regular returns of lead ore can be made at once.

2.—To drive a cross cut in a north-easterly direction, at a point about 200 fms. west of the Craven Cross, by six men; this is a most important point, inasmuch as it will cut eight known lodes, all of which have proved very productive near the surface.

3.—To cross cut north, by four men, from the 42, in the eastern end of the ground, to cut several of the north lodes coming in from the East Craven Moor Mine, which were left very rich by the former workers on account of the great influx of water.

The shaft now in course of sinking upon Golden Fleece lode is down between 5 and 6 fms. The lode in the bottom is 2 ft. wide, composed of lime spar, gossan, and lead ore of fine quality, and the appearance of the vein is everything that can be desired at the present depth.

In conclusion, we beg to remark that if these trials are carried out you will have about 50 fms. of dry banks upon the various lodes, and, no doubt, you will have large returns at a comparatively small outlay.

DAVID WILLIAMS, C. WILLIAMS.

FOR SALE, a splendid 40-ft. WATER WHEEL, 4 ft. breast, with double-gear'd DRAWING MACHINE, balance box and connection, all complete.

For particulars address, Messrs. J. TAYLOR and Co., 88, London Wall, E.C.

ZINC ORES.

ARMAND FALLIZE, INGENIEUR-CIVIL, A LIEGE (BELGIUM).

BUYER OF

1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)

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Notices to Correspondents.

"Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be sent on receipt; it then forms an accumulating useful work of reference."

THE SNOWDRAFT MINING COMPANY.—Will any shareholder be good enough to state what has become of this company? If in existence, why is there no report ever published in the Journal, that the unfortunate individuals who raised the required capital may be informed of?—A SHAREHOLDER.

MINING TERMS.—*"A Novice" (Windermere).*—The "Glossary of Mining Terms," published at the *Mining Journal* office, will give the definitions asked for. It will be forwarded on receipt of 2s. 1d.

QUOTATIONS.—*"J." (Southport).*—The quotations are those furnished by dealers interested in the mines, and represent Friday afternoon prices. No record is kept of fluctuations in the interval, except in case of extraordinary excitement in the market concerning some particular mine.

GREAT WEST CHIVERTON—TQULUMBE.—Can any reader inform a shareholder what has become of the Great West Chiverton Mine? Who were the promoters and directors? A Mr. Broadbent, jun., was secretary, and the offices in Dows-gate-hill, Cannon-street, but, being in London recently, I could find no such person. I have never, from receiving a certificate, heard anything of the mine. Can I, as a subscriber, recover? If so, it is to be hoped other shareholders will join in seeking to recover their money, as no meeting &c. has to my knowledge been convened.—Tqulumben Gold Mine was brought out about the same time, and strongly recommended by *"circumstances."* Can anyone tell me the amount spent upon the mine, its intrinsic value, and what amount of gold was discovered? When mines of this character are brought before the public it is only right that full investigation into their affairs should be allowed, and that nothing should be withheld, which would destroy that confidence in mining which must result if money is invested without some power to bring the defaulting promoters to justice.—SHAREHOLDER.

GOLD IN WALES.—The continuation of Mr. T. A. Seadwin's papers on this subject will appear in next week's Journal.

Received.—*"F. A. B." (California).*—"Engerer" (Philadelphia)—"J. W. S."—*"T."—G. H." (Brisbane):* Shall be attended to.—*"W. S."—Shareholder (Roman Gravels):* Had better write to the office.—*"Observer" (Mining Education).* Next week.—*"Y. Z."—B. M." :* The length of the Suez Canal is 90 miles.—*"J. G."—Mendig*—*"W. E. H."—R. S." (Callington)*—*"B." (Newport):* Yes.—*"C. M." (Plymouth)*—*"W. F. F." (Tavistock)*—*"An Old Subscriber" (Wolverhampton):* See City Article.—*"T. C."—J. B. D."*

IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one fourth. Henceforth the subscription will be 17. 10s. 4d. per annum (30 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxemburg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 17. 19s. (50 frs.).

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, FEBRUARY 19, 1876.

THE CLEVELAND IRON MINES.

The story of the "commercial discovery" and of the development of the Cleveland iron mining trade is tolerably well known, but there is only a faint general conception of the present position and tendencies of the trade, and it may be well to point out these in part. The increased output of stone from a few tons a week gathered on the coast, little more than twenty years ago, to its present magnitude of 110,000 tons is almost "as familiar in our mouths as household words," but the sources of the output are by no means distinctly known. We may indicate these in part for three of the later periods for which figures are available. The mines may be taken as 50 in number, but by far the largest amount of ore is sent from 26 of them. In 1865 the returns of mines working gave the names of 19 only—Belmont, Birds and Birtley, Brutton, Eston, Grosmont, Hays, Hollins, Hutton Low Cross, Loftus, Normanby, Port Mulgrave, Rosedale, Skelton, Spa, Spa Wood, South Belmont, Upthorpe, Hob Hill, and Woodfield. In that year Belmont produced out of the total of 2,726,350 tons 175,894 tons, but in 1873 it sent out only 134,965 tons, and in 1874 there was a further decrease to 91,842. Brutton, in 1865, had an output of 113,160 tons, increased to 375,331, but last year there was a considerable reduction in quantity—to 337,733 tons. Eston, in 1865, had an output of 635,980 tons, slightly increased by 1873 to 705,228 tons, but falling in 1874 to 563,888 tons. Taking Skelton next, in the first-named year the output was 108,753 tons, in the second 165,280, and in the third 157,755. Spa had in the first an output of 9076 tons, in the second 109,669, and in the third 96,185. Upthorpe had, in 1865, an output of 717,998 tons, in 1873 550,920, and in 1874 503,812. Thus in each of these cases there was for 1874 a lessened output on the previous year; and in several instances the ore sent out was less than the quantity nine years previously. There was one exception to this rule, that of the Loftus, which has for some years continued to increase its output; and at Normanby Mines the decrease was exceedingly small, but the other mines named in the list of those working in 1865 did not figure in the lists for the later years. In one of two cases this was due to local reasons, in others it was due to the prostration of other and more accessible mines; and in some cases the cessation is due to the working out of the mine. This was the case at Hob Hill, which were opened in 1864, reached their meridian about 1871 with a production of about 430,000 tons annually, fell in 1873 to 160,000 tons, and were closed, as being exhausted, in 1874.

Again, comparing some of the chief mines working in 1873 and the succeeding year, it will be found that many of these have a decension to report in the latter year. The Cliffe Minas sent out 85,545 tons in 1873, and 74,859 in the following year; Park, in the first-named year had an output of 176,238 tons, and in the last of 151,572; Liverton had in the first an output of 278,108 tons, and in the second 243,035; Stanghow in the first had 93,914 tons, and in the second 87,182, and there are other reductions which are at least unexplainable by the reasons often given for these degradations in production. It is true that the gross amount produced in Cleveland was largely increased, and it is probable that in 1875 even the amount of output will have been kept up, but this has been done by the opening out of new mines, and by the development of mines opened within the last few years. The mines at Boosebeck, Carlisle, and Kirkleatham, for instance, had outputs in 1874 which many times multiplied those of 1873, and there have been later developments.

There is another feature in the working of these mines which is notable. In 1865 only four or five of the mines were owned by blast-furnace proprietors, but the proportion has been of late largely increased. In 1873 there were more than double that number, and in 1874 there were 18 thus owned. And not only was the number increased but also the amount. The mines in Cleveland whose owners are comprised in the Mineowners' Association were 26 in number in the year named, and of these eight only were owned by owners who did not own blast furnaces. At these eight mines 1,916,467 tons of ore were raised in the year last indicated, and it may be said that out of these five mines are the property of one firm, and the output of these five was nearly two-thirds of the whole. At the 18 mines worked by blast-furnace owners 2,503,202 tons of iron ore were raised in 1874, which is 57 per cent. of the whole raised by the associated owners, and nearly one-half of the amount raised in Cleveland. Indeed, looking to other mines, such as the Grosmont and Rosedale, it may fairly be stated that three-fourths of the iron raised in Cleveland is now directly raised by the owners of the furnaces who manufacture it into crude iron. There are, then, indications of a change transpiring in Cleveland mines—of their coming more into the hands of mineowners, and if not of exhaustion of some of the older mines, at least of a lessened dependence on these, and of a consequential restriction of their output, which has been assisted latterly, and will be more assisted in the future, by the provision of better railway facilities, enabling the tapping of fountains previously inaccessible. One of the conse-

quences of this is that when the demand for ore increases there will be a larger range of sources of supply, whilst at the same time the proprietors of blast-furnaces are yearly becoming more independent of the ore markets for their supply. The producing capacity is also increasing, and though there are apparent symptoms of decay in the finished iron trade of the North, there are on the other hand indications that as a producer of pig-iron the North is likely to take a yet higher rank in the future.

OUR RAILWAY IRON ABROAD.

We are now in possession of data illustrating the shipments of British railway iron to British colonies and foreign countries during January this year, and the result must be pronounced in the last degree discouraging, the exports of the month having been only 23,580 tons, as compared with 36,171 tons in January, 1875, and 46,598 tons in January, 1874. The aspect of affairs was bad enough twelve months since, but now it has become a good deal worse. This is the conclusion to which, whether we like it or not, we are inevitably reduced. Italy, Sweden, and Brazil certainly took our railway iron a little more freely last month than in January, 1875, but a decension was observable in well nigh every other direction. In the case of the United States the demand for railway *matériel* may almost be said to have collapsed altogether, amounting, as it did, to a wretched 23 tons in January, 1876, against 2378 tons in January, 1875, and 7444 tons in January, 1874. The Canadian demand for our railway iron kept up well in January; but we only sent 2411 tons of our iron to British India in January, against 5113 tons in January, 1875, while Australia took 3649 tons in January, against 8796 tons in January, 1875. Altogether, it must be said that our railway iron exports are in a very bad way.

At the same time there are indications of some improvement in affairs in the future. The great cause of the loss of our foreign iron trade has been the disorganized condition of the labour market, and the equally remarkable state of the markets for raw materials. On all sides the British ironmaster has had to contend during the last three years with, it may be hoped, unprecedented difficulties—dissatisfied bodies of workmen utterly heedless of the importance of some little profit accruing to their employers; increasing external competition both in Europe and across the Atlantic; a constantly extending employment of steel rails; and a collapse of credit in some of the weaker foreign States. It is against such terrible obstacles that our ironmasters have had to plod on and on as best they might, but we fancy there are now some little indications of a change for the better. Mr. HALLIDAY has at length been taught by the sternest possible experience that capital must receive a small modicum of remuneration, or otherwise it will remain locked up; and we believe he has this week been a consenting party to some reduction of wages in the Welsh coal trade, from which it may be inferred that he is powerless or indisposed to resist any longer a return to reasonable and possible rates of wages. If this is the case our ironmasters may obtain a very important measure of relief in one very material branch of their expenditure. With regard to foreign competition it is of course greatly dependent upon the means which British ironmasters have at their disposal for grappling with it. Great Britain obtained her past—we are afraid that we can hardly say, in the matter of iron, her present—industrial supremacy in consequence of her producing manufactured goods of various kinds upon remarkably cheap terms, and the nearer we can return to our old cheapness the harder will foreign competitors find it to cope with us upon the markets of the world. Cheap coal and cheap labour are essential elements in the success of British manufacturing industry; are we taking too sanguine a view of matters when we express our conviction that cheap coal and cheap labour appear to be once more likely to be at the command and disposal of British industrials? With regard to steel rails, if our ironmasters cannot deal with this drawback to a restoration of the once active demand for British iron rails, it is tolerably clear that they must conform to the circumstances and conditions of the times, and adapt their work for the production of steel in the place of iron. The collapse of credit in some parts of the world must work its own cure. The financial difficulties which now afflict certain foreign countries will lead undoubtedly to a great disbursement of capital. But if more of the accumulated wealth of Great Britain flows in consequence into British colonies our ironmasters will have no reason to complain.

BRITISH ENTERPRISE IN NAMAQUALAND (CAPE OF GOOD HOPE).

The year opened brilliantly at the Cape Copper Mining Company's works at Ookiep, New Year's Day having been chosen for formally opening the railway which the company have constructed for the conveyance of their minerals and materials from the mines to the shipping port, 93 miles distant. In order to be present at the ceremony, the visitors from Port Nolloth had to leave that place at 3:30 A.M., at which time the train was in readiness to convey them, and by noon the party reached Klipfontein, the residence of the railway engineer, where Mr. and Mrs. Thwaites had provided an excellent luncheon for the whole party, which had now been increased by the contingents from Abbervlak, 'Ananous, and other places on the route. After luncheon the train proceeded to Stein-kopf, where a further addition to the number was made, and at Steiger Kraal, the late terminus, the party was met by a number of the inhabitants of Springbok and Ookiep. After an interchange of civilities the journey was resumed and Ookiep was reached shortly after 4 o'clock in the afternoon, and notwithstanding the intense heat the travellers declared that the day had been a very enjoyable one. In the evening 100 sat down to dinner. Mr. E. J. Carson, the superintendent, occupied the chair, and Mr. Thwaites, the engineer, supported him. The whole of the Cape Copper Company's officers were, of course, present, and the Civil Commissioner, the Resident Magistrate of Port Nolloth. Mr. R. J. Hall, late traffic manager, and many of the leading merchants of the district, had also accepted invitations, the number being made up by employees on the line.

The usual loyal toasts, as well as "His Excellency the Governor" and the "Colonial Ministry" having been drunk, Mr. E. J. Boyes, Civil Commissioner, proposed "The Directors of the Cape Copper Mining Company." He said that all must acknowledge that the company deserved to be called one of the most liberal in existence. In proof of this he need only remind them of what the company had done during the recent drought. He had no hesitation in saying that by the seasonable relief afforded, both to their distressed farmers and natives, the lives of hundreds had been preserved. As to the company's enterprise, it was no slight undertaking to venture on the construction of nearly 100 miles of railway in a country like that. The toast was ably responded to by Mr. Carson, on behalf of the directors, and, in proposing success to the undertaking the completion of which they had met to celebrate, remarked that he would ask them to bear with him while he endeavoured to demonstrate the necessity that urged the company to take this work in hand. He was speaking in the presence of many who were well acquainted with the history of copper mining in the district. The metalliferous deposits were first advantageously opened up by Messrs King and Co., and in their day it was conclusively shown that parts of the land we live in were exceptionally rich in deposits of copper ore. The unfortunate copper mining mania of 1854, which many of them, no doubt, could readily call to mind, cost the colony a large sum of money, and threw discredit upon the resources of Namaqualand. Notwithstanding this, several mines which had hitherto paid their way continued to flourish; but it soon began to be found that, in consequence of the distance from the port of shipment, and there being something like 6000 miles between the mines and port, that the works were to be fully developed, by the extended employment of machinery, of more men and skilled labour, then it was essential that the working capital should be increased, and that largely. After the demise of two of the partners in the firm the Cape Copper Mining Company was formed, and commenced operations. The "New Company," as it was called, soon, however, found themselves in a dilemma; for owing to the skill and rapidity with which the mines were opened out, and the distance between the point of production and that of sale, the stocks of rich ore (which, of course, meant ca-

pital) gradually accumulated, until there were thousands of tons ready for sale lying idle at the mine. The difficulty, great as it was, was increased by the severe drought which occurred from time to time, and which at length completed the break-down of the old transport system. In face of these hindrances to the development of the valuable property, the directors in 1865 sent out Mr. Hall to survey the country, and to ascertain the best mode of meeting the difficulty. His report was soon forwarded to the board, and after much anxious consideration the directors resolved on the bold but masterly course of increasing the capital, and constructing a cheap line of railway from Port Nolloth. In 1868 Mr. Hall was again sent on to carry this decision into effect, and he was enabled to carry the line across the broad belt of sand between the coast of 'Ananous and the rugged mountain to Klipfontein, and from thence to Oonemas, 75 miles from the port, by December, 1874. As most of them knew, Mr. Hall was succeeded in March last by the gentleman who now holds the post of railway engineer, and to him belongs the honour of completing the line. They had to thank him for the great energy he had displayed in finishing the work, and although some present had not before had the pleasure of meeting Mr. Thwaites, yet he felt assured that all would gladly unite in drinking "Success to the iron road, and the health of Mr. Thwaites."

In acknowledging the compliment, Mr. Thwaites very gracefully remarked that the greater part of the credit was due to his predecessor, Mr. Hall, considering that when he came ten months ago he found nearly 80 out of the 93 miles laid. However, he thought that not only the Cape Copper Mining Company but the colony was to be congratulated on the construction of such a line. For it had been shown that a line capable of conveying at least 2000 tons per month could be laid at an average cost of 1700/- per mile. It might be argued that few districts would show such a favourable condition for the construction of a cheap line as was afforded by the level country between the coast and the foot of the mountains; but there were exceptional difficulties, caused by the mountains and the broken country between Klipfontein and Ookiep. It was not necessary at the present day to say anything as to the value of railways in a country—the colony now seemed fully alive to their importance. He would now take this, the first opportunity he had had, of publicly thanking all those who had worked under him, and to whom cordial co-operation so much of the success was due. (Cheers.)

The toasts of the "Civil Service" and the "Superintendent" having been duly honoured, Mr. Boyes gave "The Health of the late Railway Engineer, Mr. R. T. Hall," remarking that no one could go over the line but must confess that the man who could surmount the engineering difficulties between 'Ananous and Klipfontein and through Ratel Poort was entitled to a high rank in his profession. He trusted that he would yet be enabled to do good work in the Transvaal, in which fine country he hoped that Mr. Hall and his family would have all health and prosperity. Mr. R. J. Hall ably acknowledged the toast on behalf of his father, who he said would have been much pleased to have been present. The Rev. W. Morris could not allow the occasion to pass without asking them to drink one more health, that of one whom all respected and loved, and who had done more, perhaps, than any other man to develop the resources of this country, and who had been superintendent not only of the present company, but of the one out of which it arose—he meant that of Mr. John Wild. The Chairman said that, on behalf of Mr. Wild, he begged to return his thanks for the hearty manner in which they had drunk to his health and prosperity. He could assure them that nothing would give Mr. Wild greater pleasure than to have been present this evening, to meet so many old friends once more, to numbers who worked under him for so many years, and to commemorate the opening of the line. He still takes a deep interest in the welfare of the district; and would, if here to-night, ask them, like the Chairman, now did, to drink to the prosperity of Namaqualand.

The value of the railway—the opening of which this meeting was to celebrate—to the Cape Copper Mining Company can scarcely be overestimated; and, as one of the speakers very justly remarked, the shareholders and the colony may be congratulated on its construction. Although no less than 93 miles in length, and presenting important engineering difficulties, the line has been completed without making a call upon the shareholders, without creating debentures, and even without suspending dividends, the difference in the cost of carriage by bullock teams and by rail (even with but part of the line opened), and the release of capital by removal of the accumulated stocks of ore, having sufficed to provide the greater portion of the outlay. The work is now completed, in full working order, and out of debt; and, inasmuch as, in addition to the main traffic, the line will, doubtless, be able to earn handsome profits from the ordinary colonial traffic between Port Nolloth and the interior of Namaqualand, the shareholders may anticipate a period of increased prosperity, of which they may well be proud, whilst the directors, who have so ably carried on the company's affairs, are fairly entitled to the highest eulogium for the manner in which they have protected the shareholders' interests.

THE DIAMOND ROCK BORER.—At Rampsde, in Lancashire, on of the Diamond Rock Borers employed by Messrs. Brogden and Son and under the charge of Mr. John Vivian, C.E., has made very satisfactory progress, having bored a length of 63 ft. with a single shaft of men during the week ending Feb. 12, attaining a total depth of that date of 2102 ft. from the surface. Excellent cores of the stone passed through have been brought to the surface from this great depth; the facility and precision with which this is done being of the features of this rock borer. The hole was begun with a crown 5 in. in diameter, in the latter part of January, 1873, and was proceeded with satisfactorily until the last week of June, 1874, when depth of 1451 ft. from the surface had been reached. Then, however, a thick bed of soft shale that had been passed through seems to have fallen in and jammed a considerable length of rods. The damage took exactly one year to repair, for it was not till the last week in June, 1875, that boring to a greater depth was recommenced. Since then the boring again shows very satisfactory results, for on Feb. 11 a total depth of 2122 ft. had been reached, thus giving an average of 89 ft. per month of boring accomplished at this great depth.

CUMBERLAND PENCIL LEAD.—With reference to the notice of the Borrowdale Plumbago in last week's *Mining Journal*, Mr. William Salmon, F.G.S., writes that the price offered for the pick of the samples was 40s. per pound, and not 14s., as stated. The price may seem high, but it is attributed to the circumstance of the mine being so pure that pencils made from it sell at a high price. The Borrowdale plumbago is unquestionably the best produced in the country, and should, therefore, command a ready sale at fair prices amongst English pencil makers, and it is anticipated that the mine, so far from being exhausted, as has been supposed, are likely to be more prolific in supply in future than they have been in the past. Prof. Warington Smyth did not inspect the specimens extracted from the mines, but Mr. R. Hunt, F.R.S., and many of the leading pencil makers and dealers in Cumberland and London, examined them, and pronounced them to be the purest plumbago. It should be mentioned that a process somewhat resembling Brockelton's has been discovered, by which the crude mineral will be completely cleansed from the impurities with which it is associated that the high reputation which the Borrowdale mines enjoyed years since will be permanently restored.

CARRIAGE OF EXPLOSIVES.—That the fraudulent carriage of explosives by passenger trains should be adduced as a reason why railway companies should lessen the restrictions upon the carriage of explosives appears much like arguing that because the number of criminals is large therefore crime should be permitted to go unpunished, yet such is the argument put forward by Major Majestic, who complains that the cost of conveying a box of fireworks, worth a few shillings, from London to Aberdeen is 9/-, and that, therefore, both gunpowder and fireworks are fraudulently sent under other names. He suggests that instead of punishing the fraud the cost of transport should be reduced to such a figure as will make such fraud unremunerative to those practising it. The carriage of explosives has always been discouraged by railway companies, and in doing this have kept the price for transport much higher than

ordinary merchandise. Mr. Cuthbert, the manager of the British Dynamite Company, maintains that, inasmuch as the company have by experiments that unconfined dynamite may be burned in an open fire without exploding, and that careful arrangements are required to make it explode at all, the restrictions which railway companies place upon its carriage should be removed. Of course, the railway companies are the best judges of the tariff at which they should carry any class of merchandise in order to compete with other modes of transport, but when the question is reduced to the alternative of carrying explosives at prices to be determined by the manufacturers thereof, or of engaging a staff of detectives to watch such manufacturers' agents, the former may perhaps be chosen. Mr. Cuthbert mentions the curious calculation that dynamite has passed over 1,333,250 miles of rail and road without accident.

THE MARSDEN MEMORIAL.—The committee for erecting the memorial statue to the late Henry Rowland Marsden, the introducer of Blake's Stone-Breaker into this country, has now been formed—Mr. E. Tiffany being president; Messrs. Nicholson, Gledhill, and Brown, vice-presidents; M. J. J. Cousins, honorary treasurer; and Messrs. Houghton and Midgley. It was remarked in the Journal of Jan. 22, that the enormous benefits the invention with which he was identified has secured for miners should suffice at least to induce Cornishmen to supply as handsome a pedestal of granite as the county can produce to assist in perpetuating his fame. As the time has now arrived for giving force to the suggestion, it may be hoped that Mr. Benedict Kitto, or some other gentleman connected with the Royal Cornwall Polytechnic Society (which may fairly be regarded as the chief representative of the Cornish mining interest) may at once take the initiative in forming a Cornish committee to assist in making the memorial as imposing as possible, and both he and the committee may rely upon all the support which the columns of the *Mining Journal* can give them.

THE SUB-WRALDEN EXPLORATION.—The boring has reached a depth of 1849 ft. Mr. Willett says—"The conviction has been irresistibly forced on my mind that the theory of the presence of a ridge of old rocks north of the English Channel and south of the Thames is no longer tenable." He gives reasons for holding this opinion, and adds—"The same reasons, with greatly increased force, on account of the additional strata to be pierced apply, in my humble opinion, to the whole remaining area of Kent and Sussex; and, so certain I am of the correctness of my deductions, that I will undertake to pay, personally, the whole cost of a boring of 2000 feet if paleozoic rocks can be found by this process, commenced in any spot either of the parish of Hythe or in any part of Kent or Sussex above the Wealdon horizon. I am presumptuous enough to say this in opposition to the opinion of an eminent geologist that 'somewhere near Hythe,' or 'North of North Downs,' or 'in the Thames Valley' east of London, coal measures are to be found."

SOMETHING LIKE A BORING MACHINE.—One of the great objections raised against the Channel Tunnel scheme is the length of time it will take to execute; but if we are to believe the *Liberte* this objection has now disappeared. In fact, according to that paper, the Tunnel can be completed in less than six months! It tells us that a machine has just been invented by which 55 metres of ground may be pierced through per diem, and it calculates if both the English and French begin piercing at the same time the Tunnel can be cut out in 141 days!

THE BLOCHAIRN IRON COMPANY (Limited).—The opinion of counsel (Sir H. James, Q.C., M.P., Mr. Graham Hastings, Q.C., and Mr. Bowen) has lately been taken, at the instance of certain shareholders, as to the liability of the promoters, Messrs. Chadwick and Co., to make good the losses which the shareholders have sustained, on the ground of the gross misstatements made in the prospectus and elsewhere; and meetings have since been held in Manchester and Leeds to consider what further steps should be taken. Mr. Wilson (Messrs. Newstead and Wilson, Leeds) read the opinion of counsel, and also, at the request of Mr. D. Chadwick, M.P., read some letters which he had received from that gentleman asserting that his firm had acted with integrity in forming the company, and deprecating any proceedings against them. It was decided that proceedings should be commenced against Messrs. Chadwick and Co. An influential committee was appointed to control the proceedings, and a guarantee fund is being raised to defray the expenses. It is understood that half the required amount was raised before any application was made to the general body of shareholders.

AMERICAN PATENT LAWS.—A Bill recently introduced in the United Senate for the amendment of the Patent Laws dispenses with models, allows appeals from Patent Office decisions to the Courts, provides that rejected applications shall be kept secret, and provides for the publication of all patents issued prior to the adoption of the system of printing current issues.

COAL AND IRON IN THE UNITED STATES.—The deliveries of anthracite coal in Pennsylvania to Jan. 22 this year amounted to 1,309,293 tons against 1,203,049 tons in the corresponding period of 1875, showing an increase of 106,214 tons this year. The deliveries of bituminous coal in Pennsylvania to Jan. 22 this year amounted to 163,490 tons, against 134,184 tons in the corresponding period of 1875, showing an increase of 34,206 tons this year. The shipments of coal from the Cumberland (Maryland) district last year were as follows:—By the Chesapeake and Ohio Railroad, 1,210,771 tons; by the Chesapeake and Ohio Canal, 879,935 tons; and by the Pennsylvania State line, 160,708 tons; making a total of 2,281,415 tons. This total presents a reduction of 129,450 tons, as compared with the corresponding total for 1875. Some steel rails imported from England 11 years since by the Pittsburgh, Fort Wayne, and Chicago Railroad Company, and laid down on that company's system, are still in an effective condition. The Pittsburgh, Fort Wayne, and Chicago Company is at present obtaining large steel rails of American manufacture at \$70 per ton. English iron rails have been quoted of late in bond at New York at \$35 to \$36 per ton gold; American iron rails have made at the works \$45 to \$48 per ton currency. In consequence of a glut in the Pennsylvanian coal markets the proprietors of the Schuylkill Collieries have agreed to stop work from Feb. 5 until March 11.

ECONOMIC TREATMENT OF ORES.—Some improvements in the economical and effectual calcination and chlorination of poor and other ores have been patented by Mr. T. J. BARNARD, of Plymouth. Instead of placing ores upon any ordinary hearth, with a flame brought to bear above or over them, the hearth is made of fire-clay tiles or iron, or other suitable substance, and a flame placed underneath, so that the bottom of the hearth or furnace is made red-hot, but little fuel is required by this plan, which can be illustrated and proved by an ordinary frying pan with ore upon a fire, as a red or white heat can be quickly obtained and retained at a very little cost and labour, naturally by heat or a flame being conducted over or through the ore, as hitherto practised the action must be upon the surface or top of them, since the bottom of all furnaces is never sufficiently hot to be of any practical utility. As before described, the ores are placed upon red-hot tiles or iron and the work commences at once. Chlorine instead of immediately escaping, now passing through the body of mineral substance, which is turned over and over at divers periods by any of the ordinary well-known methods, so that every particle of mineralised matter at some period or other during the process rests upon red-hot tiles or iron. Coals and other fuel of the most worthless description can be used, as the absence of draught which has till now been regarded as the most essential item is quite secondary, or gas may be made and jets placed underneath the hearth in order to cause each and every pound of fuel to do full justice instead of tons upon tons of coals being used to kindle a flame which ends only in wearing out furnaces without acting effectually and profitably upon ores. Further by the invention where coals or other fuels are used instead of gas, the flue conducting the smoke from the fire will be separate and distinct from the flue or chamber through which the fumes given off from the ores pass, by which method air volatile matters collected in a purer state, and the escaped chlorine

not having the contamination of fuel smoke, hitherto causing a commercial failure, will form an important subject of utilisation in the preparation of bleaching powder and other bi-products.

MINING COMPANY OF IRELAND.—This enterprise has now been established more than half a century, and the enormous amount of benefit which it has conferred upon Ireland is absolutely inestimable. An analysis of the company's accounts shows that, taking a rough average since the closing of the capital account, the company expends in wages over 100,000*l.* for each 500*l.* of profits realised, and inasmuch as the shareholders have received 460,950*l.* in dividends, it follows that since the shareholders commenced to receive dividends no less than 9,219,000*l.* has been paid away as wages to their workpeople. The company, moreover, was formed in 1824, but did not enter the Dividend List until 1838, and during the fourteen years in which the concern was in a progressive state the shareholders contributed 140,000*l.* towards expenses and losses, and paid upwards of 1,750,000*l.* in wages to the workpeople. In the aggregate, then, the operations of the Mining Company of Ireland have provided 11,000,000*l.* for wages, and given a large amount of employment to a vast number of families. The capital of the company is 500,000*l.* in share of 2*l.* each, but only 7*l.* has been called up, and no call has been made since 1835. The collieries, lead mines, and smelting works of the company are all realising profits, and although for the moment the Knockmahon Mines are, owing to the depressed state of the copper market, not quite covering the outlay, they are thoroughly good mines, and will doubtless contribute largely hereafter to the general profit fund. They produced during the six months ending Nov. 30 upwards of 2000 tons of ore, which sold for 10,494*l.* 10*s.*, and the loss was but 1732*l.* 5*s.* 7*d.*, so that a comparatively small improvement in the market would put the balance on the right side of the account. In spite of the Knockmahon drawback, however, the company's net profits for the half-year were 4193*l.* 6*s.* 8*d.*, and out of this a dividend of 5 per cent. was paid during last month, leaving a good balance to carry forward. The concern is altogether in a highly prosperous condition.

CHINA-CLAY IN THE HELSTON DISTRICT.—The extreme depression of mining in some parts of West Cornwall appears to have stimulated a looking after other sources of industry, hitherto partially, and, in some cases, wholly neglected; this is particularly obvious in the Helston district, where important and extensive beds of china-clay have lately been opened up. The most important discoveries and operations in the district are at present carried on in the parish of Germoe, near Breage, in and about the Tregoning Hill, where the production and manufacture of the article has been for many years successfully carried on in a small way, chiefly by local enterprise. Ultimately, however, the attention of outsiders was drawn to the district, and within the last 12 or 18 months the first start was made by the formation of a company for working a portion of ground near the once celebrated Wheal Grey Mine. A fine bed of clay was quickly laid open; and, by great zeal and activity, it is anticipated clay will be ready for the market in a month or two. The prospects appear to be very encouraging in a peculiar sense and otherwise. Another company, under the limited liability principle, is now being brought out to work more extensively the Tresowes China-Clay Works, which have been successfully and profitably carried on in a small scale for a long period. The situation of these works for cheap and profitable working is exceptionally good; and there can be no doubt from the great mass of potting and bleaching clay known to exist in the grant, that, by proper conclusion, the results will be of a perfectly satisfactory character; and the directors, from a property like this, should have no difficulty in getting a requisite amount of capital to carry out the works of extension so wisely intended. The works have been most favourably reported on by well-known practical men, who estimate the average profit on ton of clay will be from 6*s.* to 8*s.*, or about equal to 20 per cent. on the capital of the company, on a return of only 3000 tons yearly. The Tregoning Hill China-Clay and Brick Company are near the former, and have for many years been worked so as to return regular dividends to proprietors. At these works very superior bricks and tiles are manufactured from the refuse of the clay; this principle should be adopted by other works, as it must considerably add to the profit and value of the properties. Various other grants for china clay have been secured in the immediate locality of those named, in which large bodies of clay have been found, and will probably very soon be spiritedly developed. This augurs well for the future, and is hailed with satisfaction in what a short time ago was condemned as an exhausted district; and it is earnestly wished that the operations in this district, as has been the case in other parts of the county, will richly repay for the capital invested in what may be considered industrial and commercial enterprises. Great praise is due to Mr. W. Argall, of Breage, who has intensely exerted himself in bringing about the foregoing results, and who, it is a satisfaction to learn, is officially connected with them all.

REPORT FROM CORNWALL.

Feb. 17.—One never looks in vain to the Dolcoath account to supply a text for comment, and last Monday's meeting was unusually fruitful. Here is a mine which ten years since, at the period of the last greatest depression in tin, could only give 35*s.* in dividends, principally derived from copper, that can now with an equally low standard, although much deeper, divide over 2000*l.* per quarter. The present price of tin as compared with that at the previous meeting has caused the mine to receive 1000*l.* less on its sales, yet here is the 10*s.* dividend with the regularity of clockwork. And be it remembered that this, though the result of good management, does not arise in any way from carelessness or neglect. It is not a mere consequence of "picking out the eyes." On the contrary, we hear that during the past quarter the man-engine has been extended 36 fms., and that by the aid of a new engine the men will be able to go up and down twice as fast as at present. Capt. Thomas was wisely oracular with regard to the future. He would not go further than to say that if trade generally revives the tin trade will revive as well. On the prospects of a general revival of trade he was wisely silent, but his acts speak more than his words. He would hardly talk of driving a new level under the valley part of the mine at such a juncture if he had not hoped that the lowest point had been reached to encourage him, and if he did not expect some revival in the standard at no very distant time. At least, that is the light in which we read his proposal. His notice of the boring-machine, though brief, cannot be deemed other than satisfactory. The 202 level is to be driven by its aid, and he anticipates that it will do the work very much faster than hand labour.

There was fire at Dolcoath on Sunday at the large steam-stamps house, but it did not turn out anything very serious. The two engine nightmen left their work, and damped up their fires at seven o'clock. Soon after they left a man named Rodda, who lives near, saw flames issuing from the engine-house. He immediately went to the spot, and procured such assistance as was obtainable. The flames soon attracted a large number of persons from the neighbourhood. Two hoses were laid on as soon as possible, but before this was accomplished much damage was done to the house, and the roof speedily fell in. It is most fortunate that a fire-engine was on the mine, otherwise it is probable that damage to a large extent would have been done, as the shedding of the extensive run of floors is almost close to the engine-house. The agents on the mine were early on the spot, and by the energetic action of many willing hands all danger of the extension of the fire was soon at an end.

At the County Adit meeting, held recently at Truro, it was stated that the ochre collected from the sediment of the water flowing out of the adit is now made to bear a very large proportion of the expense of maintaining the adit. The attention of those primarily interested in the adit was first directed to this matter some two or three years since, when it was shown that private persons were obtaining the ochre, and making a handsome profit out of it, while the maintenance of the adit was borne by the mines into which the adit extended. Things have, however, been placed on a different footing, and the ochre is now collected by the agents of the adit.

Mr. Basset has given yet another proof of his liberality by reducing the Cook's Kitchen and Wheal Basset dues to 1-60*th* during pleasure. We commend this example to those lords—happily there are not many of them, nor as a rule is their interest large—who think that the present is the time to insist upon their miserable pounds of flesh, and thus do their best to kill the goose that in more prosperous times lays such stores of golden eggs. It should be borne in mind that it is not the general rule in civilised countries—as in England—for minerals to be absolutely private property, and granted due compensation made for surface damage, more consideration should be shown than is very often the case for those who speculate with their capital and their energies to hit the wealth that may possibly be underground.

It is by no means improbable that the handsome premium offered by Mr. Basset for the utilisation of a mineral substance found in

the county heretofore waste will have a claimant. The proprietors of the Phoenix Brick Works, near Gunnislake, have succeeded in manufacturing from an unctuous friable kilns a thoroughly damp-proof brick and other ware. By a patented process the kilns are ground and brought into a plastic condition, and then worked into bricks and the like, which become thoroughly vitrified—not on the surface merely—and are thus utterly impervious to all damp. Moreover, white bricks are produced as well as blue. This appears to be a very valuable discovery.

Mr. E. H. Rodd, so long the respected purser of North Wheal Crofty, is about to resign. A gentleman more sincerely desirous of doing his duty to the general body of adventurers, and to the mining interest of Cornwall generally, than Mr. Rodd it would be impossible to find. His courtesy and willingness to oblige every shareholder will long be remembered. Mr. J. H. Lean, who has been clerk to the mine for 22 years, and is thoroughly acquainted with the details of the purser's work, offers himself as Mr. Rodd's successor, and the shareholders could not make a better choice.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Feb. 17.—The course of business in the South Staffordshire Iron Trade is without improvement either in the pig or finished departments, and prices of the commoner descriptions have, in some instance, receded to a slight extent; but any fall of importance is prevented by the continued great cost of production. The quotations for pigs remain at 3*l.* to 3*l.* 5*s.* for common cinder, and 4*l.* 10*s.* to 4*l.* 15*s.* for best native all-mine. Cold-air pig is firm at 6*s.* per ton for Lilleshall and other noted makes. Owing to the restricted demand for pig-iron it is probable that several additional furnaces will shortly be added to the number out of blast. In one or two cases finished iron is reported in somewhat better request this week, but the general demand is very quiet, and some transactions in common iron have taken place at 1*s.* 3*d.* to 2*s.* 6*d.* per ton under last week's rates. There is no change in the quoted prices.

At a special meeting of the South Staffordshire Iron Trade, held in Birmingham on Thursday, to consider the proposed re-establishment of the Board of Conciliation, the secretary (Mr. D. Jones) was instructed to arrange the election of 12 representative masters as a committee to carry out the scheme, the gentlemen elected to constitute the Wages Board.

The Staffordshire Coal Trade does not present much change upon our last report, but, if anything, the demand is quieter, especially as regards forge coal. For the present the course of prices is steadily sustained, the better qualities showing some firmness.

The following were among to-day's quotations on the Birmingham Stock Exchange:—Sandwell Park Colliery, 2*s.* sellers; Cannock and Huntington Colliery, 1*s.* to 2*s.* prem.; Hamstead Colliery, 1*s.* 2*d.* prem.; Chilington Iron (10 paid), 4*s.*; John Bagnall and Sons, 6*s.*; Pelsall Coal and Iron, 5*s.* to 4*d.*

Mr. Stephen Thompson, of the firm of Thompson, Hatton, and Co., the Bilston Tin-Plate Works, is retiring, and the business will be carried on under the style of Hatton, Sons, and C.

The North Staffordshire Iron Trade is quiet, and the prospects of the spring trade are not very encouraging. Orders for finished iron are few in number, and the bar-mills are not doing more than five turns per week. Pig-iron is in moderate demand, and prices are firm. There is a good demand for house coal, but manufacturing fuel commands very little enquiry.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Feb. 17.—The Iron Trade is still dull, and it is feared is likely to remain so, buyers still hanging back in the apparent hope that prices will be still further reduced, in consequence of the expected fall in the wages of colliers. On the other hand, ironmasters contend that they cannot possibly sell at lower rates, and that they would, rather than accept such, close their establishments altogether. Business remains slack on home account, and shipments foreign continue to be remarkably small.

The principal subject of discussion during the week has been the award of the Conciliation Board, which enforces reductions in wages varying from 7 to 33 per cent. Neither masters nor men can be said to be perfectly pleased with the award. The steam colliery owners assert that the reduction which they are authorised to carry out—viz., 7 per cent.—is not sufficient to enable them to make reasonable profits, and the men in the house coal pits are also dissatisfied; and the same remark applies to the anthracite coal proprietors. However, whether satisfied or not with the award, there appears to be a general inclination to bow to the inevitable; and, as a matter of fact, to act otherwise would be unworthy of either masters or men, seeing that they had previously agreed to submit to the result of the investigations of their representatives whatever it might be. The shipments foreign of coal are about the same as last reported, and no movement is apparent in the demand. House coals are unaltered, and the patent fuel trade is inactive.

The Tin-Plate Trade is somewhat unsatisfactory just now. Reductions will be shortly enforced in the wages of certain classes of workmen in Glamorganshire, and the movement will, no doubt, spread to other districts where the trade is carried on.

It is feared that the railmen at Tredegar will be almost without employment at the end of March. The millmen at Briton Ferry Ironworks, who at first struck, at a reduction of 12*s.* per cent. in their wages, have now resumed work, being convinced that it was wrong to strike against the agreement entered into in 1873.

It has been decided to present a testimonial to Mr. Joshua Davies, late manager of the steam coal colliery at Llwynypia, under the Glamorgan Coal Company. The output at this pit has increased to an enormous extent since Mr. Davies took charge. He has been appointed manager of the Penrhiew Colliery, one of the largest undertakings in South Wales.

An excellent seam of anthracite coal, 9 ft. in thickness, has been won at Trimsaran.

The Taff Vale Railway Company have declared a dividend at the rate of 10 per cent. per annum for the past half-year, and a bonus of 1 per cent. The sum of 725*l.* will be carried forward. This line is one of the most successful in the kingdom. We may add that the traffic receipts for the local lines again show a large increase over the corresponding week of last year.

A strike took place at the Giant and Gowdyd Collieries, Waunarlwydd, but the men afterwards agreed to resume work at a reduction of 10 per cent.

The case of the Vale of Neath Colliery Company (Limited) & F. Farnes was before Vice-Chancellor Bacon on Saturday. The question was as to an alleged contract entered into by the defendant with the plaintiffs for their colliery at Abergavenny, Glamorganshire. The defendant now filed a demurrer to the plaintiffs' statement of claim of 600*l.*, which his lordship allowed with costs, giving leave, however, to amend the statement.

A mass meeting of colliers took place at Aberdare on Monday for the purpose of discussing the merit of the sliding scale recently issued. The meeting expressed confidence in their representatives on the board, and accepted the resolutions passed in reference to the sliding scale, but disapproved of the proceedings of the board being carried on in secret, and also for having induced the men to put their names to the late agreement without knowing what it would actually be. The decision of the Conciliation Board was received without excitement in the Rhondda Valley. A deluge meeting of men employed in the anthracite collieries has been held at Swansea. It appeared from a statement made by the miners' agent that the employers do not like the idea of their pits being classed by the Conciliation Board with the steam coal collieries. The masters seem (according to this statement) to be in favour of accepting the amount of reduction that would fall on the steam coal by the selling price of steam coal. This view of the question will be submitted to the men at the various collieries. The Hendreforgan Colliery is open to the men now at a reduction of 7 per cent., which terms the meeting for the present accepted.

There is now a slight hope that some amount of business will be done at the Cyfarthfa Ironworks, which have been almost entirely closed for a long period. A deputation of men have asked Mr. Crawshay to recommence operations, but the reply has been that iron could not be made at the works for present prices, and, moreover, all the old customers had been lost. Mr. R. T. Crawshay, however, would not for the present say either way, but would see what could be done for the men. No work, with the exception of some trifling orders, has been done at Cyfarthfa since the middle of 1874.

The news from Merthyr is of an unpleasing nature. It appears that notices have been posted up at the collieries of the Plymouth Company that in a month's time work will cease at all the pits but two. The stoppage will affect between 700 and 800 men. The conduct of the company in this has been adversely criticised at meetings of miners' agents at Aberdare and of colliers at Dowlais. The meetings maintained

that the notice is in violation of the agreement made by the Sliding Scale Committee in November, 1875.

The Bill for vesting the Sirhowy Railway in the London and North-Western Railway was approved of on Tuesday at a special meeting of the former company.

TRADE OF THE TYNE AND WEAR.

Feb. 17.—There is no change of importance to report in connection with the Coal and Iron Trades here. On the whole, both trades are very dull and flat, and the whole business of the district is entirely destitute of animation. A considerable number of the works in Durham are kept pretty well employed, as they supply gas, house, and coking coal, and the demand continues fair for those kinds of coal, but those works producing steam and manufacturing coal are not at all regularly employed. The best steam coal produced in Northumberland have been reduced in price, and a little more business has been done on the Tyne in those coals, but this trade has been extremely stagnant of late, and many of the works have only been doing half-time of late: 12s. 6d. per ton may now be taken as the standard price for best steam coal; inferior sorts are sold at 10s. per ton. The demand for gas coal, both for the coasting and foreign trade, is well kept up. The imports of esparto grass and ore into the Tyne from Spain have been on a good scale lately. The Chemical Trades in this river continue dull. The masters on the Tyne have lately attempted to get a further reduction of 15 per cent. off the men's wages, but a sort of compromise was made, by which they agreed on both sides that a reduction of 7½ per cent. should be made all round; but, as the men have not unanimously accepted this reduction, the masters have locked the whole of the men out, and upwards of 6000 men connected with this trade are now idle on the Tyne. A number of collieries have been stopped in this district, and it is pretty certain that many others are likely to succumb if no change occur soon in the value of coal or the cost of raising it. It is well known that some of the largest concerns in the Tyne have made no profits during the past year. At the Tyne Main Collieries, near Gateshead, all the men have received notice, and it is feared that these works will be stopped shortly.

Engineers and founders have not been well employed here lately, but a little improvement has occurred. There is also more activity in the ship-yards at some points. At Jarrow, where there has been great depression in all the departments for a long period, there is a little improvement, and three ships are to be built immediately. This celebrated iron shipbuilding yard, where so many vessels of the largest size have been built, both for mercantile and war purposes, has been almost entirely closed for some time, but it is to be again got into active operation, as large orders are expected shortly.

The Iron Trade continues very dull, and no improvement can be expected until a reaction takes place in the finished iron trade. There is a fair demand for shipbuilding iron, but scarcely any demand for rails, and the bar trade is also very flat. There are rumours of changes likely to be made in the construction of the rails at some of the large rail making concerns here, so as to enable the masters to manufacture steel instead of iron rails, and no doubt the change will be a necessity sooner or later.

Some improvements in puddling and other furnaces, the working bottoms of which are formed of plates of metal, have been recently invented by Messrs. Roberts and Noble, of the Britannia Ironworks, Middlesborough-on-Tees, their object being to reduce or modify the intensity of the heat of the bottoms during working. The underside of the plate forming the working bottom of the furnace is formed with flanges which dip into water placed beneath. The water is contained in tanks formed to receive it at one end, and allow it to pass away at the other, so as to ensure circulation of the water, and its being kept thereby comparatively cool, and maintained at a desired level. The surface of water in the tank or holder extends under the entire bottom, or nearly so. They also propose to construct a double flue or chimney draught to these furnaces.

COLLIERY ARBITRATION.—The county of Durham has lately been the scene of one of those industrial disputes which, unless they are quickly and satisfactorily adjusted, cannot fail to prove injurious to the material prosperity as well as the social well-being of the country. Happily, both the colliery owners and their workmen had the good sense to refer their differences to arbitration. The arbitrators failed to agree, and so the question as to whether there should be a reduction in the rates of wages was referred to Mr. C. H. Hopwood, Q.C., M.P., as umpire. After a patient investigation of the facts, Mr. Hopwood has decided that there shall be a reduction of 7 per cent. in the wages paid to the miners, and of 4 per cent. to the surface workmen, excluding engine-men, fitters, joiners, smiths, masons, and masons' labourers. This is the first award; the second deals with the case of the men employed in the coke collieries, who are to submit to a reduction of 4 per cent. in the amount of their wages. Mr. Hopwood has had great experience in questions of this nature, and in a peculiar degree he commands the respect and confidence of the skilled workmen of the northern counties. We have no doubt that whatever disappointment his decision may occasion to the miners of Durham, they will loyally accept it as a fair and equitable settlement of the controversy.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been no improvement in the amount of business done. In shares of iron and coal concerns prices are generally a little lower, the reductions amounting to:—½ on Lothore and Capeltdrae; ½ each on Bolekow Vaughan, A, and Ebbw Vale; ¼ on Benhar (full paid); 4s. each on Glasgow Port Washington and ditto (prepaid); and 1-16th on Benhar (full paid). Nanty-Glo and Blaina (preferred) is however, quoted 1 higher; and Omoa and Cleland has improved ½ on the satisfactory statements given at the meeting of Monday (reported elsewhere). Cardiff and Swansea have been dealt in at 2½; and Whitehaven Iron required for at 3½. The movements are quite unimportant in foreign copper concerns; Huntington is 1s. dearer, and Tharsis (new) ½, but Tharsis (old) are ½ lower. Rio Tinto is 5½ to 5½. Benberg Lead, 3 sellers. In home mines, Dolcoath 39, sellers; Dunsley Wheal Phoenix, after changing hands at 6d., is now 5s. 6d. to 7s. 6d. quite a remarkable rise in its small way; Glasgow Cardon, 32s.; ditto (new), 22s.; Killifreth, better, at ¾ to ¾, an improvement having occurred; Marke Valley, ¾, buyers; New Pembroke, 4s. 6d. to 6s. 6d.; and West Maria, 7s., sellers. In shares of gold and silver mines, Emma are 1s. per share lower, and Richmond, ¾; while Flagstaffs have advanced ½. Exchequer is 1½, sellers; Pestarena, ½; and Tecoma, ½ to ¾. Young's Paraffin, ½ lower, is the only change in shares of oil companies. In miscellaneous, Peruvian Nitrate again ½ lower; others quite the same. Some business has been done in Phospho-Guanos;—A, preferred, has been sold at 7½, now 7½, buyers; B is quoted 2½ to 2½. A detailed list of the several days' business follows:—

On THURSDAY last the market was quite neglected. Dunsley Wheal Phoenix, done at 9s. and 6d., closing 9s. 10s. Emma shares done at 4s., closing 4s. to 4s. Killifreth, 7s. to 15s. New Pembroke, 4s. to 8s. Omoa and Cleland, 4s. to 4s. Richmond shares done at 6½, closing 6½ to 7½. Tharsis shares done at 24½ and 24½, closing 24½ to 24 3-16ths; new shares done at 18½, closing 18½ to 18½. Whitehaven Iron, 3½, buyers. Young's Paraffin shares done at 8½ to 8 3-16ths, closing 8½ to 8 3-16ths, closing 8½ to 8½. Scottish Wagon (all paid), 11-3-16ths to 11-7-16ths.

On SATURDAY the business done was almost nominal. Benhar, 11 to 11½; Cardiff and Swansea, 2 ½-16ths to 3 ½-16ths. Ebbw Vale shares done at 13, closing 13 to 13½. Huntington, 21s. to 23s. Lothore and Capeltdrae shares done at 7½, closing 7 to 7½. Monkland, 5s. to 5s. 7 per cent. guaranteed, 6 to 6½. Omoa and Cleland shares done at 4s., closing 4s. to 4s. Peruvian Nitrate, 10, sellers. Pestarena United, 2s. to 3s. Plynlimon Lead, 14s. to 14s. 6d. Richmond shares done at 7, closing 7 to 11 1-16ths to 11 7-16ths. Tharsis shares done at 24½, 24½, and 24 3-16ths, closing 24 3-16ths to 24½. Whitehaven Iron, 3½, buyers. Young's Paraffin shares done at 8 3-16ths, closing 8½ to 8½. Scottish Wagon (all paid), 11-3-16ths to 11-7-16ths.

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THE LINARES ZINC MINING COMPANY, LIMITED.

Capital £30,000, in 10,000 Shares of £3 each,

Of which only 500 Shares are now to be issued.

PAYABLE—£1 per share on application, and £1 on allotment; with further call not sooner than June, 1876.

If no allotment is made the deposit will be returned in full.

To be incorporated with Limited Liability under the Companies Acts, 1862 and 1867, by which the liability of the shareholders is limited to the amount of their shares.

DIRECTORS.

CHARLES HOWARD, Esq., 25, Aldgate High-street, and Lloyds.

JAMES WOOD, Esq. (Provost of Banff).

ROBERT JAMES LAING, Esq., C.E., The Limes, Upper Clapton.

FRANCIS REED WILSON, 20, St. Helen's-place, E.C.

BANKERS—THE ALLIANCE BANK.

SOLICITOR.

TUFNELL SOUTHGATE, Esq., 7, King's Bench Walk, Temple.

MANAGER IN SPAIN—JAMES G. WOOD.

SECRETARY—F. F. WILSON.

OFFICES—20, ST. HELEN'S PLACE, LONDON, E.C.

PROSPECTUS.

The company is to be formed for the purpose of acquiring and working certain valuable calamine mines, situated near the village of Linares, in the Province of Teruel, Aragon, Spain, comprising an area of about 330 English acres in extent.

The mines are eleven in number, each of about 30 English acres, some of them bounded by, and all adjoining, mines which have been for many years worked, and are now being worked, at a great profit.

About 150 tons of calcined ore are now in store, and some 600 tons ready for calcination lie at the mouths of the various mines.

Taking the value of calcined ore at Swansea to be £5 1s. per ton for 50 per cent., there would result a profit of £1 1s. per ton. But as the cleaned ore would average at least 55 per cent., this would, at 3s. 6d. per unit, bring the profit up to £2 1s. 6d. per ton. At the present price of spelter the profit would be £3 7s. 6d. per ton, but supposing that the output is only 5000 tons, just half what M. de Garay calculates on, and that the profit per ton is £2 1s. 6d., a moderate estimate, we get an annual profit of £12,875, which, on a capital of £15,000, would be equal to 86 per cent. per annum.

In the above calculation the value of the lead ore has not been taken into account, but the mines yield large quantities of lead ore of from 50 to 60 per cent., for which ready sale is found in the neighbourhood.

The directors having satisfied themselves as to the character and ability of the vendor, confidently recommend this as a *bona fide* undertaking. The vendor is willing to embark his personal interest in the property in paid-up shares of the company, and to manage the mines in Spain, at a salary dependent on the profits.

No expensive machinery nor plant will be required to carry out the works, so that only a small capital is necessary.

The existence of mineral of a highly valuable character, sufficient to yield a profit, is certain, and there is every reason to expect that the quantity and quality of mineral in the mines are such that the property will prove a much more valuable one than is estimated in this prospectus.

The prices of the ore at Swansea and the quality of the calcined ore have been severally tested by the directors, and the verification of the figures, and the original analysis by Messrs. Claudet and Co., assayers to the Bank of England, may be seen at the offices.

The only contract entered into is one bearing date 9th of December, 1875, between James Gardner Wood, the vendor, and Felix Francis Wilson, on behalf of the company.

THE EAST ELWY RIVER LEAD MINING COMPANY (LIMITED).

Incorporated under the Companies Acts, 1862 and 1867.

Capital £20,000, in 4000 Shares of £5 each.

For which share warrants to bearer will be issued, thus avoiding the trouble and expense of transfer deeds, and doing away with that annoyance so frequently the result of registration as a shareholder.

Payment, £2 10s. on application, and £2 10s. on allotment.

No allotment is made the deposit money will be returned without deduction.

MESSRS. THORNCROFT AND CO., 30, Brockley Buildings, South John-street, Liverpool, are AUTHORISED to INVITE SUBSCRIPTIONS FOR ONE THOUSAND SHARES of the EAST ELWY RIVER LEAD MINING COMPANY (LIMITED). Unlike many of the Welsh lead mines brought before the public, where "promising appearances" and "reliable indications" alone form the inducements held out to investors, this property has been developed to such an extent as to prove the existence of rich lead ore both in the shallow and deep workings, and in such quantities as to justify the strong expectation of early dividends held out by the prospectus.

In the case of this mine it is not a question of speculation as to what will be found when certain work is done, but an absolute fact that the completion of the deep adit will provide facilities for getting away the ore already discovered, and also promote the further profitable development of this property, which Messrs. Thorncroft and Company confidently believe will eventually prove to be one of the most successful mines in Wales; and, judging by the high premiums to which dividend-paying mine shares rise in the market, they think it not at all improbable that the East Elwy River Lead Mine Company's shares of £5 each may ere long be quoted from £10 to £20 per share; and it is their belief that, under any circumstances, the shareholders may look for a very large percentage of profit.

ABRIDGED PROSPECTUS.

The property of the East Elwy River Lead Mining Company (Limited) is situated a short distance from the village of Talhaiarn, and about five miles from the Abergavenny station of the Chester and Holyhead Railway.

The property has been carefully examined by several well-qualified authorities, who express in most decided terms the high opinion they unanimously form of the great value of this mineral grant.

Capt. Thomas Mitchell, manager of the famous Parry's Mountain Mine, and who has had great experience of mining properties, says—"I expect a great mine will be opened out, equal perhaps to any in the district, not even excepting the famous Blaenau Gwent Mines, which are situated only a few miles eastward."

[I.D.—The Talybont mines have, it is said, returned over a million and a half in profits, and are now being extensively developed.]

And considering the number of the lodes, their masterly size, highly promising appearance, and the rich quality of the ore obtained therefrom, the congenial nature of the rock in which they are embedded, the extraordinary working facilities the property possesses, the never-failing supply of water power available, and the other numerous conveniences appertaining to this property, I question if a more eligible property, and one likely to turn out more successfully with a small outlay of capital could be found in North Wales."

The following assay of the produce of the mine has been made by Messrs. Johnson, Matthey, and Co., assayers and meltors to the Bank of England and Her Majesty's Mint.

Assay Office, Hatton Garden, London, E.C.

September 10, 1874.

Stone of ore from East Elwy River Lead Mine:—Produce of lead, 80 50 per cent. (Signed) JOHNSON, MATTHEY, and Co.

It will be interesting here to note that 14 lead mines, with a total subscribed capital of a little more than £600,000, have returned in dividends £2,250,000 sterling, or equal to a return of 360 per cent. upon the outlay. Of these, by far the most profitable are Welsh mines. The Lishburne Mines, for instance, have returned nearly £20,000 on an outlay of £7500; Minera, nearly £580,000 on an outlay of £45,000; and East Darren, recently £70,000 on an outlay of £6000. Another Welsh mine, known as Van Mine, has since its opening, six years ago, given nearly £200,000 in profits. With these facts before us, and considering the forward state of development of the East Elwy River Lead Mine, with ore discovered at several points, it is not being over sanguine to predict that at an early date the shareholders may look for dividends on a scale that will render this mine conspicuous in the records of the many already celebrated Welsh lead mines.

Prospectuses, applications for shares, and any further information may be obtained from the brokers, Messrs. THORNCROFT and Co., 30, Brockley Buildings, South John-street, Liverpool.

RAILWAY CARRIAGE COMPANY (LIMITED).—ESTABLISHED 1847. OLD BURY WORKS, NEAR BIRMINGHAM. MANUFACTURERS OF RAILWAY CARRIAGES AND WAGONS, and EVERY DESCRIPTION OF IRONWORK.

Passenger carriages and wagons built, either for cash or for payment, over a period of years.

RAILWAY WAGONS FOR HIRE.

CHIEF OFFICES, OLD BURY WORKS, NEAR BIRMINGHAM. LONDON OFFICES, 7, GREAT WINCHESTER STREET BUILDINGS.

THE BIRMINGHAM WAGON COMPANY (LIMITED).—MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.

EDMUND FOWLER, Sec.

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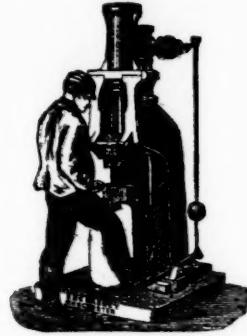
A NEW GUIDE TO THE IRON TRADE OR, MILL-MANAGERS' AND STOCK-TAKERS' ASSISTANT: Comprising a Series of New and Comprehensive Tables, practically arranged to show at once the Weight of Iron required to produce Boiler plates, Sheet-iron and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions. To which is added a variety of Tables for the convenience of Merchants dealing in Russian Table. By JAMES ROSE.

Second Edition. Just published, price 5s. 6d.

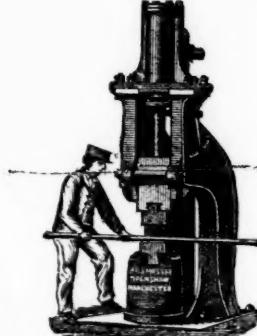
B. & S. MASSEY, OPENSHAW, MANCHESTER.

PRIZE MEDALS Awarded:—Paris, 1867; Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873; Scientific Industry Society, 1875; Leeds, 1875.

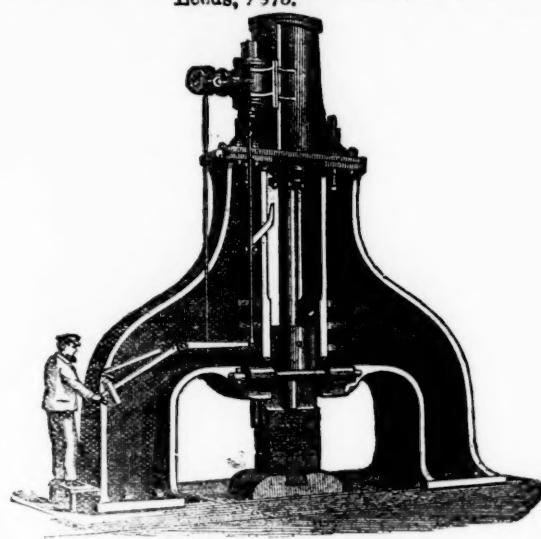
Patentees and Makers of Double and Single-acting STEAM HAMMERS of all sizes, from $\frac{1}{2}$ cwt. to 20 tons, with self-acting or hand motions, in either case giving a perfectly DEAD BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers, working up to 500 blows per minute, in some cases being worked by the Foot of the Smith, and not requiring any separate Driver.



Small Hammer with Foot Motion.



General Smithy Hammer.



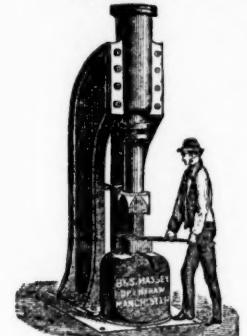
Steam Hammer for Heavy Forging.

SPECIAL STEAM STAMPS, for Forging, Stamping, Punching, Bolt-making, &c.

STEAM HAMMERS for Engineers, Machinists, Ship-builders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for Use in Repairing Smithies of Mills and Works of all kinds for straightening Bars, bending Cranks, breaking Pig-iron, &c.



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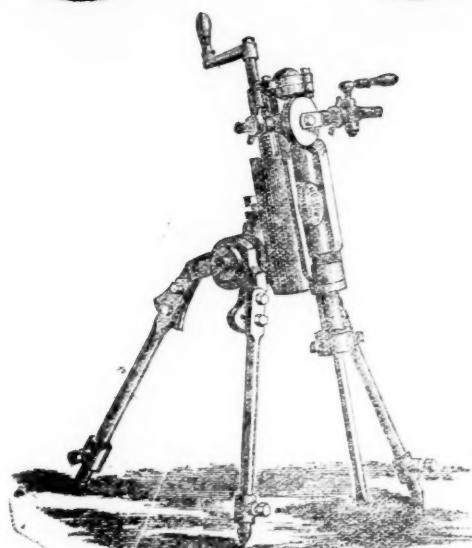
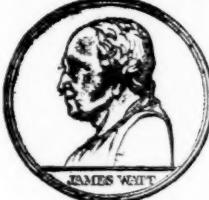
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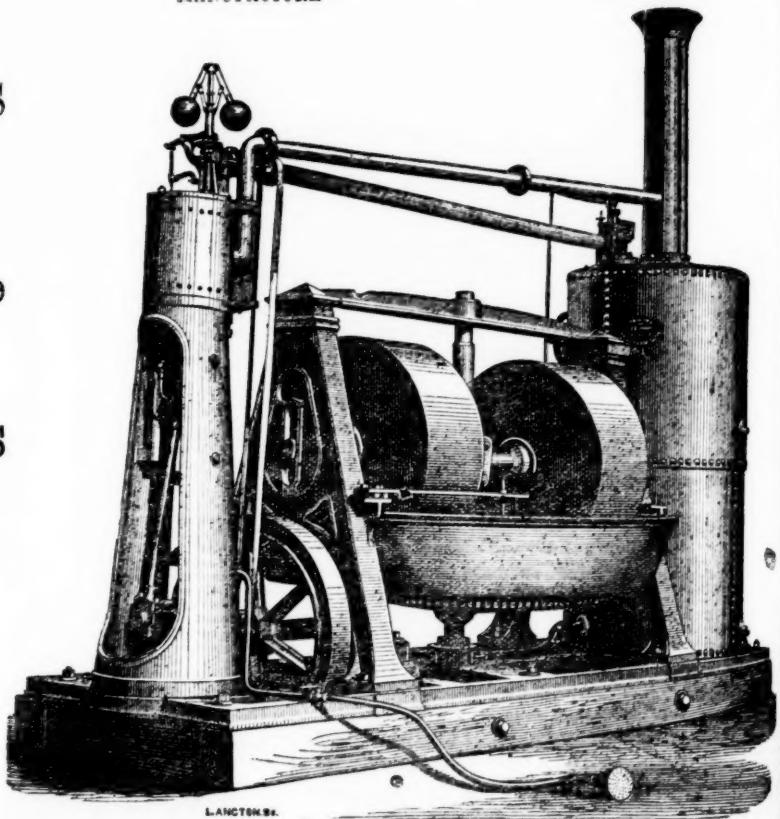
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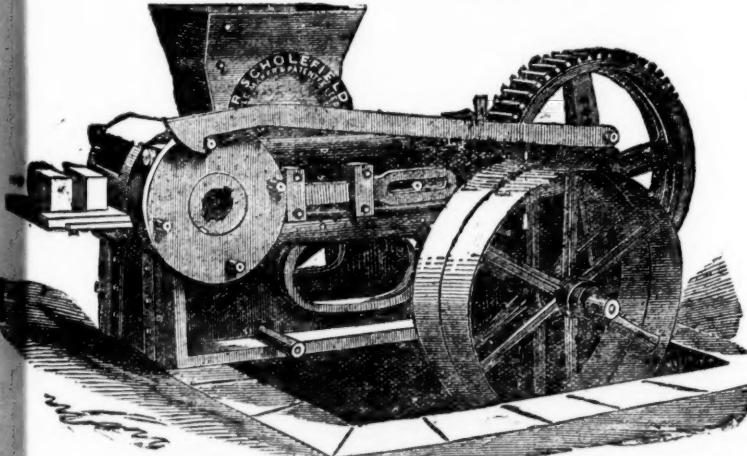
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2 men digging, each 4s. per day	£0 8 0
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1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 5s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0

Total cost of making 10,000 pressed bricks £1 5 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

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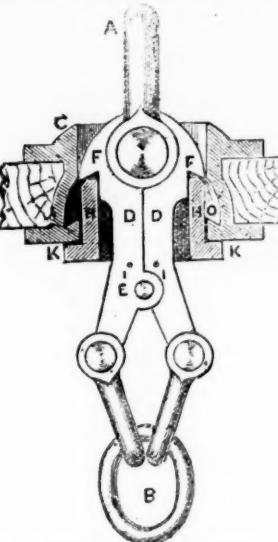
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1500 Alderley Edge, c, Cheshire*	10 0 0	—	—	—	12 11 8	0 5 0	Jan. 1876
11000 Balmynheer, t, Wendor (4000 to ls.)	1 0 0	—	—	—	6 2 0	0 2 0	Nov. 1875
30000 Bampfylde, t, c, mn, Devon*	1 0 0	—	1 1/2	1 1/2	0 2 0	0 2 0	June 1873
20000 Batalack, t, c, St. Just*	11 0 0	42 1/2	27 1/2 40	—	819 15 0	8 0 0	Aug. 1872
4000 Brookwood, c, Buckfastleigh	1 0 0	—	4	4	3 15 0	0 3 0	Nov. 1875
3548 Cargill, s, Newlyn	5 18 0	—	1 1/2	1 1/2	4 16 8	0 12 6	Oct. 1872
6400 Cashwell, t, Cumberland*	2 0 0	—	—	—	1 7 6	0 2 0	Aug. 1875
10000 Carn Brea, t, Illogan	35 0 0	40	36 25	—	308 0 0	1 0 0	Feb. 1874
6000 Cath, & Jane, t, Penrhynydndreath	8 0 0	—	—	—	0 7 6	0 7 6	June 1873
2450 Cook's Kitchen, t, Illogan*	21 0 9	5	4 4 1/2	—	11 17 0	0 2 0	Jan. 1873
10240 Devon Gt. Consols, c, Tavistock*	1 0 0	5	4 1/2 5	—	118 10 0	0 12 0	May 1872
4296 Dolcath, t, c, Camborne	10 10 0	40	38 40	—	109 3 0	0 2 6	Feb. 1876
6500 Drake Walls, t, c, Calstock	6 0 0	—	1 1/2	1 1/2	0 2 0	0 2 0	July 1874
10000 East Ballesdon, t, Sancered*	1 0 0	—	—	—	0 2 11 0	0 6 0	Feb. 1874
6144 East Caradon, c, St. Cleer*	2 14 6	3	24 3	—	14 19 0	0 2 0	Oct. 1872
3000 East Darren, t, Cardiganshire	32 0 0	20	25 30	—	232 0 0	1 0 0	Feb. 1874
6400 East Pool, t, c, Illogan	9 0 9	18	14 15	—	14 7 3	0 4 6	Jan. 1876
1908 East Wheal Lovell, t, Wendor*	5 19 0	6	4 5	—	20 7 6	0 10 0	Feb. 1874
2500 Foxdale, t, Isle of Man*	25 0 0	—	—	—	82 5 0	0 10 0	Feb. 1876
40000 Glasgow Carr., c* (30,000 £1 p.)	10,000 15s. p.	1 1/4	1 1/4	—	0 11 10 0	0 2 0	Jan. 1876
15000 Great Laxey, t, Isle of Man*	4 0 0	18	18 20	—	19 3 0	0 10 0	Jan. 1876
25000 Great West Van., t, Cardigan*	2 0 0	—	—	—	0 2 0 0	0 1 0	Aug. 1874
6008 Great Wheal Vor, t, c, Helston*	41 2 6	2 1/2	1 1/2 2	—	18 19 6	0 2 6	June 1872
6400 Green Burth, t, Durham*	8 0 0	3	2 1/2 3	—	1 12 0	0 4 0	Oct. 1874
20000 Grogwinion, t, Cardigan*	2 0 0	6	5 6	—	0 5 6	0 2 6	Jan. 1876
9830 Gunnislake (Clitters), t, c	5 5 0	3	2 3	—	0 8 9 0	0 1 0	Oct. 1875
1024 Herdfoot, t, near Ilkley*	8 10 0	4 1/2	4 1/2 4	—	62 5 0	0 18 0	Oct. 1872
18000 Bington Down, c, Calstock* (21s. p.)	2 5 0	1 1/4	—	—	4 4 0	0 1 0	Nov. 1875
25000 Killace, s, Tipperary	1 0 0	—	—	—	0 3 11/2 0	0 6 0	Mar. 1873
4200 Lisburne, t, Cardiganshire	18 15 0	55	50 55	—	571 10 0	1 0 0	Jan. 1876
5120 Lovell, t, Wendor	10 0 0	—	—	—	0 17 6 0	0 1 0	Jan. 1874
9000 Marke Valley, c, Cardigan*	5 0 8	3 1/2	3 3/4	—	7 15 0	0 2 0	Jan. 1876
11000 Melindur Valley, t, Cardigan*	3 0 0	3	2 3	—	0 7 2 0	0 2 0	Jan. 1876
9000 Minera Mining Co., t, Wrexham*	5 0 0	5	10 12	—	64 10 0	0 5 0	Feb. 1876
20000 Mining Co. of Ireland, c, t, * ¹	7 0 0	—	—	—	23 11 6	0 3 6	Jan. 1876
512 North Busy, c, Chacewater	3 9 6	8	6 8	—	0 10 0	0 10 0	Dec. 1874
12000 North Hendre, t, Wales	2 10 0	—	4 2 1/2 3	—	1 2 6 0	0 2 6	Nov. 1875
2000 North Levant, t, c, St. Just*	12 2 0	—	—	—	4 13 0	0 12 0	Sept. 1873
21855 Old Treburegett, s, ordinary shares	1 0 0	—	—	—	0 9 0 0	0 9 0	Feb. 1874
9258 Old Treburegett, s, (10 1/2 p. c. pref.)	0 10 0	—	5/4	5/4	0 1 4 0	0 0 0	July 1874
5630 Pedian-a-drea, t, Redruth*	9 17 0	2	1 1/2 2	—	0 5 0 0	0 5 0	Nov. 1871
5000 Penhalls, t, St. Agnes	3 0 0	—	—	—	3 13 6 0	0 2 0	July 1875
45783 Penstrithual, t, c, Gwennap	2 0 0	—	5/4	5/4	0 2 8 0	0 8 0	Nov. 1875
6000 Phoenix, t, c, Linkinhorne*	4 13 4	—	—	—	39 19 10 0	0 0 0	Nov. 1872
18000 Prince Patrick, s, Holywell	1 0 0	—	2 1/2	2 1/2	0 14 0 0	0 1 2	Jan. 1876
1120 Providence, t, Lelant*	15 18 7	2 1/2	2 1/2 2	—	104 12 6 0	0 10 0	Sept. 1874
12000 Roman Gravels, t, Salp*	7 10 0	—	14 1/2	14 1/2	5 16 0	0 8 0	Feb. 1876
512 South Caradon, c, St. Cleer	1 5 0	125	120 140	—	724 0 0	0 2 0	Nov. 1875
5000 South Carn Brea, c, t, Illogan*	2 17 0	—	1 1/2 1/2	—	0 10 0 0	0 2 6	July 1872
6123 South Condour, c, t, Camborne*	6 5 6	5/4	4 5/4	—	1 15 0 0	0 2 6	Feb. 1874
6000 South Darren, t, Cardigan*	3 8 6	—	—	—	1 1 6 0	0 1 6	Nov. 1872
10000 So. Pr. Patrick, s, (8000 sh. issued)	1 0 0	—	—	—	0 7 0 0	0 1 0	Oct. 1875
12000 Tawkerly, t, Salop	5 0 0	—	12 1/2 12 1/2	—	4 2 0 0	0 5 0	Feb. 1875
6000 Tincroft, c, t, Pool, Illogan*	9 0 0	20	18 20	—	48 18 6 0	0 5 0	Nov. 1875
4000 Trumpet Consols, t, Heaton*	8 10 0	—	—	—	9 11 0 0	0 10 0	Nov. 1872
12000 Tylwyd, s, Cardigan	1 0 0	—	1	1	0 1 0 0	0 1 0	Nov. 1875
15000 Van, t, Llandilo*	4 5 0	37 1/2	40 41	—	18 13 6 0	0 15 0	Dec. 1875
3800 W. Chiverton, t, Perranzabuloe*	12 10 0	18	17 18	—	53 10 0	0 12 0	Dec. 1875
1783 West Poldice, t, St. Day	10 0 0	6	4 6	—	1 14 0 0	0 4 0	Feb. 1872
512 West Tolgus, c, Redruth	95 10 0	60	60 65	—	11 0 0	0 1 5 0	Dec. 1875
2042 West Wheal Frances, t, Illogan	27 3 9	9	8 8 1/2	—	3 12 6 0	0 5 0	Oct. 1872
512 Wheal Bassett, c, Illogan*	9 2 6	26	24 26	—	638 10 0	1 10 0	Aug. 1872
2045 Wheal Jane, t, Kex	2 13 10	3	2 3	—	8 5 0	0 5 0	July 1875
4255 Wheal Kitty, t, St. Agnes	5 4 6	3 1/2	3 3/4	—	11 19 6 0	0 2 6	Dec. 1874
80 Wheal Owles, t, St. Just*	85 5 0	140	—	—	522 10 0	0 4 0	Aug. 1872
8000 Wheal Prussia, t, Redruth	2 0 0	—	4	3 1/2 4	0 3 0 0	0 2 0	Dec. 1875
20000 Tankerville, t, Salop	5 0 0	—	12 1/2 12 1/2	—	82 9 0	0 0 2	Mar. 1872
6000 Tincroft, c, t, Pool, Illogan*	9 0 0	20	18 20	—	0 6 0 0	0 3 0 0	Aug. 1875
25000 Wicklow, c, s, t, Wicklow	2 10 0	—	—	—	—	—	—
10000 Wye Valley, t, Montgomery*	3 0 0	—	8 6 7/4	—	0 6 0 0	0 3 0 0	Aug. 1875

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
28500 Alamillos, t, Spain*	2 0 0	—	2 1/2	2 1/2	1 9 9 0
30000 Almeda and Tirito Consol., s*	1 0 0	—	3/4	3/4	0 5 3 0
20000 Australian, c, South Australia*	7 7 6	—	2 1/2	2 1/2	0 15 0 0
10000 Battle Mountain, c, (8240 part pd.)	5 0 0	—	1 1/2	1 1/2	0 10 0 0
15000 Birdseye Creek, g, California*	4 0 0	—	2 1/2	2 1/2	0 14 0 0
60000 Bensberg, t, Germany*	10 0 0	—	3/4	3/4	0 10 0 0
12320 Berra Berra, c, So. Australia	5 0 0	—	—	—	0 17 4 0
20000 Cape Copper Mining, t, So. Africa*	7 0 0	—	39 1/2 38 1/2	—	22 15 0 0
40000 Cedar Creek, g, California*	8 0 0	—	1 1/2	1 1/2	0 5 0 0
30000 Central American Association*	18 16 8	—	—	—	0 6 0 0
15000 Chicago, t, Utah*	10 0 0	—	6 1/2 6	—	1 16 0 0
21000 Colorado Gold, t, Colorado*	5 0 0	—	2 1/2	2 1/2	0 16 0 0
10000 Coquio, g, Chile* (420 shares)	15 15 0	—	3/4	3/4	7 8 5 0
10000 Den Peiro North del Rey*	1 0 0	—	3/4	3/4	2 5 9 0
23500 Eberhardt and Aurora, s, Nevada*	10 0 0	—	8 7/4 9	—	3 12 0 0
80000 Emma, g, s, Utah	20 0 0	—	2 1/2	2 1/2	0 1 0 0